



*The poeticon
ASTRONOMICON

Gaius Julius Hyginus

★ The poeticon ASTRONOMICON

*Being the illustrious astronomer's exposition of the lore
of the World and the Heavenly Sphere, together with the
stories of the planets and constellations: now for the first time
rendered complete into English, and reproducing all the
original woodcut illustrations from the first illustrated
edition printed by Erhard Ratdolt
in Venice, 1482.*



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THIS BOOK

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THE TRANSLATION from the Latin is by Mark Livingston, B.A. Williams College, assisted by D. Neel Smith, Ph.D. cand. (classics), University of California, Berkeley. The translation is based on Ratdolt's edition, corrected against Bernhard Bunte's variorum edition (Leipzig, 1875). The closing commendatory verses in the Venetian text are omitted. Text and illustrations produced with the kind cooperation of The Bancroft Library, University of California, Berkeley, and The Huntington Library, San Marino.

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MAN, HIMSELF PLANETARY through day and night, would from the first have wanted some signs by which to mark the sun's course and the wandering stars among the sublime and fixed: so in their wake he might make spellbound the ceaseless flux of earth-time. Every human pursuit (and which of them is not Time-telling at heart?)—fishing, farming, hunting, trade, sacred rite, magic, politics, natural science—would at length look skyward to the glittering ecliptic "Furrow of Heaven." Now myths, shards, boundary-stones & seals, coins, temple plans, telltale syllables of names whisper in witness to the origin of all Old World zodiacs, perhaps of most of our constellations, in eldest Mesopotamian Akkadia.

So the heavens described in Hyginus's poetic source, the *Phainomena* of Aratos, prove to be those, not of the poet's own third century BC, but more nearly of the late third millennium BC. By the time Assurbanipal codified the Babylonish creation-legend (c. BC 650), the venerable constellations, so its tablets suggest, numbered 36—the zodiacal twelve and twelve each to the north and south: the emblematic exploits of its hero Gilgamesh (which make a palimpsest with our Labors of Herakles) are themselves quite likely zodiacal. Greek myth otherwise accounts for the star-signs only as of vaguest antiquity: now as Chiron's invention, to help Jason steer the *Argo*; now again as the handiwork of Atlas himself, Skybearer.

Babylonish sacred astronomy filtered slowly westward through Assyria, Phoenicia, Ionian Greece. Most distinctly Greek starlore dates to later classical times, when Eudoxos of Knidos, a student of Plato, composed *Ta Phainomena*, a treatise in which he is supposed (for it is lost) to have fixed 44 constellations. In the vogue of star-mythmaking that followed, Aratos rendered the *Phainomena* into verse, and in his version it served as a handbook

to the heavens far and wide for centuries: Cicero was among its Latin translators, and many are the commentaries on it still preserved, thankfully along with the original.

Hipparchos, the second-century Alexandrian astronomer-mathematician on many other counts honored as the father of modern astronomy, compiled a star-catalogue, c. BC 150, the marvel of ages following. The Hipparchan star-list is said to have named 49 constellations; it survives only in Books VII and VIII of Ptolemy's *Megalé Syntaxis tés Astronomía* (Great Synthesis of Astronomy, 127-151 AD), albeit revised, and yoked to Ptolemy's wildly ingenious efforts to 'save the Appearances'—to resolve the irresolvable discrepancies between Aristotelian cosmological doctrine and the real sky. Writing just after Hyginus, Ptolemy canonized the '48 ancient constellations' for the rest of history.

In Ptolemy's wake European astronomy languished a thousand years and more, while Arab astronomers refined and conserved his scheme. The *Syntaxis* became *Al Kitāb al Mijisti* (Greatest of Books), and at length simply the *Almagest*. In 1252, at last, under Alfonso X, *El Sabio*, of Leon and Castile, Ptolemaic lore flared up again on the continent, heavily Arabicized and supplied with tables. The tinder was caught: next the advent of printing fanned the flames.

Erhard Ratdolt, a German printing in Venice, issued the *Poeticon*, among other astronomical titles, in 1482, edited by Jacobus Sentinus and J. L. Santritter. Hence the present volume takes both its text and its vigorous woodcut-images, in which the age-old star-forms first saw print. Ratdolt reissued the *Poeticon* at least twice, and Hyginus continued to enjoy the favor of printers well into the next century. (Ratdolt would go on to print the Alfonsine Tables in 1483, and the next year Ptolemy.)

In 1537, at Köln, Ptolemy appeared with 48 shapely engravings of the constellations by Albrecht Dürer. Johann Bayer's *Uranometria* (1603) standardized the Dürer designs in a form we often see reproduced today. But as late as 1742 Augustinus von Staveren included the *Poeticon* in his compendium of Latin mythographers, dressed out with fine new engravings.

HYGINUS himself, in all this? A problematic identity: the *Poeticon* is only uncertainly ascribed to the Antonine author of the better-known *Fabulae*—a collation of mythic subjects like the present Book II—and so dated to the outset of the second century of our era. He appears to have been broadly but rudely, perhaps only imitatively, versed in Hellenistic learning: he cites over 40 sources in the *Poeticon*. Of them all he has wrought a crude digest, rationalizing, syncretizing, dabbling in ethnography, geography, and etymology, and in some cases moralizing and allegorizing, after the manner of his age. His very ignominy may have saved his work, in outlying scriptoria, from the heinous arson of the central Library at Alexandria, in 415 AD, by religious fanatics. Much of the old Graeco-Euphratean star-magic and -science clouded the sky, then, with the smoke of its burning. But Hyginus we have, with his rough-hewn notions and pictures, a precious link in this chain of immemorial lore.

The reader may take pleasure in referring to:

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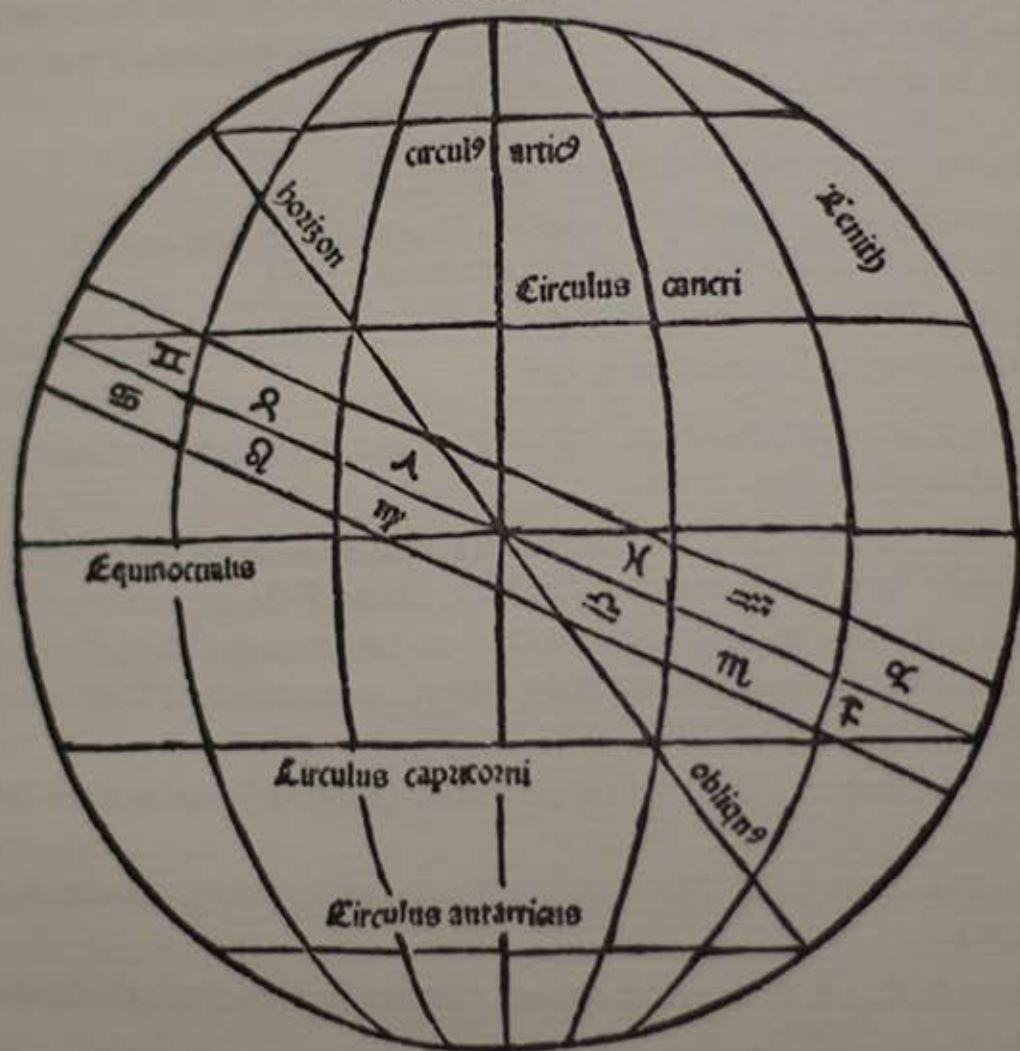
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Polus articus



Polus antarticus

BOOK ONE: PROHEMIUM. Making Account of
the World and the Sphere, and the Parts of Both.

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YGINUS SALUTES YOU,
Fabius: willing witness that I am to your own literary
excellence—an artistry refined by long practice—
not merely in the good measure of your verse, such as
few have skilled to make, but also in your breadth of
enquiry, for by such means the world is made known
to us: but all this is the more readily discerned in your
writings than my praises. Like yourself, then, desiring
rather a wise than an easy judge—and all the more
so if, though I seem both more practiced and better
versed in these matters (as indeed I have been preoc-
cupied with them more) than some, I should be said
to have made nothing of my youth, and condemned
by the uninitiated as an idler—have I addressed my-
self to you, just as I have drawn on earlier wisdom:
hoping not so much to instruct the ignorant, as to take
counsel with the most sage.

Behold, then, the configuration of the heavenly

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sphere, together with those circles that are described in it; and, since they are of unequal measure, let us consider by what ratio they have been apportioned.

h And set out in turn the limits of earth and sea, noting
y what tracts lie unpeopled, and with what many and
g good reasons they are fallen so desolate of humanity.

i Turning back to the heavenly sphere, we have reck-
i oned forty-two constellations by name; and in each
N case recounted its origin, together with the causes of
U its translation into the stars. In the same place it
S seemed useful to trace their forms in outline, and to
number the stars that make them up. Nor have we neglected to show, in charting the sevenfold heavenly circles, which figures thereof describe them, and in what manner those figures are set out amongst them.

Beside this, in defining the Summer Tropic, we have sought to explain why it should not be confused with the Winter Tropic, and what may have misled them who have done so. Also we examine what effects the sun's course produces in their neighborhood. And in due course show in what way we may divide the heavens into eight bands; and, in particular, in what position the Aequinoctial Circle should be placed; and how the sun effects its progress through that quarter. In laying out this same circle we note how Aries comes to be called the swiftest of stars, and touch briefly on the subject of the Winter Tropic.

Thence we turn to the Zodiac, tracing its circuit and the role it plays in the heavens; and giving the reasons for twelve, rather than eleven, signs being numbered in it. And of the remaining circles we say as much as seems proper.

All these things being set out, we are come to a vantage-point from which to consider whether the whole World revolves, along with the stars; or whether, while the wandering stars are borne forward, the World stands fixed. And since it appears plausible to us as it has to many, we consider every reason for thinking it is the World itself that revolves: in consequence of which, why some more swiftly-rising constellations set later, while others slower to rise make haste to their setting; and for that matter why those signs which rise together do not set at the same time.

Under the same head we speak of why the uppermost arcs of the sphere are of unequal measure with the lower; and of the various effects that prevent our observing certain stars. Next we treat of those bodies which appear to rise alongside the twelve signs, and of those which seem to set with them. And we go on to consider whether the sun revolve in tandem with the World, or of itself; and if it move of itself, making its ascent against the course of the twelve signs, why then it appears to rise and set with the turning World.

With that we expound somewhat concerning the moon's course, and consider whether it shine by its own, or some other, light; the manner in which eclipses of the sun and moon occur; and why the moon, taking its way along the same circuit, should appear to outrun the sun — what, then, has deceived those who believe that it does. And we take up the proportional intervals between the five wandering stars, enquiring whether indeed there be five or seven; and whether the five alone wander in their courses, or all of them do; and of the five, the precise nature of their

motion. We explain as well by what reason earlier astronomers denied that the Zodiac signs revolve at the same rate as the other stars; and why they should have observed the pivoting of the courses most accurately; and how others have erred in the same matter.

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Our concerns being so many and varied, it should arouse neither wonder nor alarm that we have written such a quantity of lines. Rather it becomes a seasoned reader to regard not the length of the scroll, but the throng of its subjects. So that if I shall seem to dwell on my themes at too great length, you must consider this not so much the creature of my own eloquence, as the burden of the subject itself. Nor, if I should treat something but briefly, shall you value it less than if you had to bear with many long words about it.

Indeed, having laid out the heavenly sphere, we follow Aratus in all, only making plainer that which in him was obscurely expressed; so that you must allow we have taken no small pains in pursuing the subject in hand. For granted that we have availed ourselves of the best authors, the better to frame matters more clearly and more succinctly than has heretofore been done, shall we not also be allowed worthy of you learned ones' praise, which ranks highest among men? If we have done less, we can scarce ask your attention to the lore collected here: but for this very reason we are minded to rely on those preeminent works, with which we ourselves have been most employed, and against which we may measure our efforts as befits. Understand it is of the weightiest matters that we have written you, our most learned and cherished friends; nor do we content ourselves with trifles, striving for the good

opinion of the masses. But enough of what we forego:
let us come to the matter itself, and lay it out from
its beginnings:

First, of the WORLD, by which name the sun, moon,
and earth, and all the stars together are comprised. And
of the heavenly SPHERE: that form which we conceive
as a great rondure, appearing equal on every hand, and
upon which the circles we have spoken of are de-
scribed. But of itself neither the ending nor the begin-
ning can be fixed, since any portion of its rondure may
mark equally a beginning and an endpoint.

Second, of the CENTRUM, which is that point of
origin whence the circumference of the sphere is taken,
and the position of the earth also clearly established.

Third, of the DIAMETER which spans the whole of
the sphere, extending as it were a straight rod from one
side of the circumference across to the opposite:
which by many is called the Axis. Its precise endpoints,
on which the sphere devolves, moreover, are called
the Poles; and of these that facing into the north wind
we call Boreus, and its opposite, fronting the south
wind, Notus.

Fourth, of the heavenly DEMARCATIONS, certain of
which, arcing over the sphere, are called the circles.

And of these they are named parallels which spring
from and end in the same pole; those devolving on the
same Centrum as the sphere itself, moreover, are the
greatest of the circles.

Now the boundary between what can be observed
and what lies beyond our sight we call Horizon, but
this is fixed by no certain ratio, lying sometimes below
the pole and those circles we call the parallels; some-

times resting equidistant at either extreme of sight; or yet otherwise again bounded against the earth, in other reaches: so that it is only fixed by wheresoever one takes one's vantage of the heavens.

h Fifth, of the POLE: chiefly that which we call Boreus,
y it being ever in sight overhead; while Notus, for differ-
G ent reasons, lies always removed from view. Now the
i natural station of the World, which we speak of as its
N physical position, is so fixed with respect to the Boreal
U pole that all the heavens appear to rise on the right
S hand of it, and to set leftward of it. Indeed the rising
heavens are as a spectacle cast up suddenly before our
eyes, while in setting, for like cause, they vanish as if
snatched from view.

Sixth, how over the World's rondure run five parallel bands, from which depend all the relations of the heavenly sphere — excepting only that which we call the Zodiac: it, unlike the other circles, which are strictly bounded by diameters, appears more inclined in the sky, and so by the Greeks was called $\Lambda\text{O}\Xi\text{O}\Sigma$, meaning *Crosswise*. But the five circles we spoke of earlier are meted out thus through the sphere: taking their beginning from the Boreal pole, so called, then down along to that variously called Notus, or the Antarctic pole.

Now each hemisphere is divided into thirty parts, in such wise that the whole diameter of the sphere is manifest in the sixty partitions thus made.

From this same Boreal origin, then, having marked off six parts on either side, we first draw a circle whose center is fixed at the pole itself, and this we call the Arctic Circle, because the images of Arctus Major and Minor, which we make out in the shapes of the *Greater*

and *Lesser Bears*, appear bounded within it. (These constellations are also known as the *Septentriones*, or the *Seven Plough-Oxen*.)

Proceeding from this to the five other circles so apportioned, moving outward from the aforesaid center, we draw the circle called ΘΕΡΙΝΟΣ ΤΡΟΠΙΚΟΣ, the *Summer Tropic*, for the reason that the sun, when it advances to this circle, brings summer to dwellers in northerly reaches; but at the same time winter to those (whom we earlier mentioned) fronting the southerly gale. And accordingly, because the sun never passes beyond it, but forthwith turns back hence in its course, it is called ΤΡΟΠΙΚΟΣ, *a turning*.

Taking up now from the circle thus traced, on to the four remaining, we draw the Aequinoctical Circle, by the Greeks called ΙΣΗΜΕΡΙΝΟΣ, or *Equal-Parted*, being that the sun, arriving in this band, makes even length of night and day.

This circle being established, fully half the heavenly sphere is laid in view; and in like proportion round the contrary pole, Notus — six partitions being made as we described roundabout Boreus — a circle is drawn which we call ΑΝΤΑΡΚΤΙΚΟΣ, or *Antarctic*, since it lies opposite that which we circumscribed in the Arctic. The sphere being marked off thus, with the pole Notus as our centerpoint, five partitions are again made: first the ΧΕΙΜΕΡΙΝΟΣ ΤΡΟΠΙΚΟΣ, which we call the *Winter*, and still others the *Solstice*, *Tropic*: inasmuch as the sun, when advanced to it, brings winter upon us that front the north wind, even as to those who make their homes under the south wind it brings summer. Now the further the sun's remove from dwellers in

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northerly reaches, the more they are battered by winter; and the more summer-stricken are they nearest upon whom the sun blazes from its station. Thus it is that the Aethiopians must submit to the influences of both tropics.

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From this Winter Tropic now to the Aequinoctial Circle four partitions remain to be made, such that the sun appears to take its whole course through the sphere in eight stages. Now the band of the Zodiac itself can best be traced — if you will first establish its signs, as we shall shortly do — simply by following along them in order. The starry band which we describe as 'milky' and which lies athwart the Aequinoctial Circle must, it follows, divide that circle in half, touching upon it twice: first where *Aquila, the Eagle*, stands; and again in the neighborhood of that star we call *Procyon, He who foreruns the Dog Star*.

Thus, then, are the twelve signs apportioned: the five circles which we have described are so ruled that each of them is subdivided into twelve segments, between whose endpoints lines are extended, marking off these other bands within which the twelve signs are described. But by the uninitiated it is sometimes asked, why all the circles are not marked off in equal segments, that is, so that five parts are meted out from the thirty of each hemisphere, and circles thus traced of equal measure? Against this objection we may confidently make our defense: for the sphere being divided, none of the circles in either hemisphere can possibly equal another: let one approach howsoever near another, yet of the two one will be found the smaller. And on that account, those who first charted the heavenly sphere,

desiring that there might be an equal reckoning among all its circles, aimed to show that for any segment in fixed proportion, the further one passes from the pole, the fewer in number must be the parts meted out to its actual measure. That this is so one may understand from the very nature of the sphere: the further one proceeds from its pole, the more the circuits of it must be lengthened; in consequence of which fewer partitions are made per length, in order that they be effectively equivalent. And so even were each hemisphere partitioned not into thirty arcs, but rather by any other determination you please, still the same rule of proportion would apply as if it had been fixed at thirty.

Seventh, then, regard the band of the Zodiac, bounded by those three circles we have already described — touching, that is, the Summer and Winter Tropics each in a certain quarter, but dividing the Aequinoctial Circle in half. So it is that the sun, taking its course through the Zodiac without ever passing beyond it, necessarily appears to compass those signs it consorts with, and passes through their course to the circles we have described, from which it governs the four seasons.

For from Aries, *the Ram*, where it takes up its way, it spreads with spring, and continues to do so as it passes through Taurus, *the Bull*, and Gemini, *the Twins*; but now, reaching the heads of the Twins, we see it touch the Summer Tropic and so, proceeding through Cancer, *the Crab*, Leo, *the Lion*, and Virgo, *the Maiden*, bring to pass summer. But from the furthest reach of the Maiden, behold it moving back again toward the Aequinoctial Circle; now then, while in Libra, *the Balance*, it effects the equinox, and sets in motion the

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signs of autumn, passing from this sign into Scorpio, *the Scorpion*, and Sagittarius, *the Archer*: whence presently it advances toward the Winter Tropic; and from Capricornus, *the Sea Goat*, Aquarius, *the Water Carrier*, and Pisces, *the Fishes*, settles winter full upon us. And so we see the sun's course not as following these three circles, so much as arriving at them at certain stages in its course through the Zodiac.

Now seeing that we have made our account of all these matters, let us fix the position of the earth, and in due course show how its lands appear to lie interspersed all by the sea. So,

Eighth, of the EARTH. Set in the midmost region of the World, and distanced at equal intervals from all parts of it, the earth maintains the very Centrum of the heavenly sphere. The World's axis likewise divides this middle region along the line of the earth's own; while the Ocean, streaming forth from the surrounding reaches of the globe, swells near against every end of its orb; and on this account men hold that the stars themselves sink into its flood. So too may we explain how the continents are altogether surrounded by it. For any land whatever lying between the Arctic and Summer circles must belong in one of the three continents: the first Europe, the second Asia, and the third Africa. The sea itself divides Europe from Africa, from the furthest shores of Ocean and the Pillars of Hercules; while the mouth of the river Nile, sometimes called after its chief city, Canopus, separates Asia from Libya and Egypt. And the river Tanais divides Asia from Europe, marshaling its flood from two courses toward that great Lake which we know by the name Maeotis.

By this account it is easily seen how the sea bars every reach of the earth.

But that some may not think it strange, since we earlier spoke of the sphere's being partitioned sixtyfold, that we should now set off only that part of it lying between the Summer Tropic and Arctic Circle as habitable, bear with me in my argument, which is best made thus: the sun, when it passes over the middle region of the globe, produces so fervid and immoderate a heat through all its locales, that the lands bounded by the Summer and Winter Tropics were known to the Greeks as ΔΙΑΚΕΚΑΤΜΕΝΗ, *the Scorched Lands*. There neither can the parched earth bear its fruits, nor men long endure the extreme heat. The two endmost regions of the globe, moreover — those we call Boreus, on the one hand, and Notus on the other — bounded, respectively, by the Arctic and Antarctic Circles, lie unpeopled because the sun is ever far distant from them and the winds gust fiercely there. For though the sun advance as far as the Summer Tropic, still it will seem but distant from the Arctic's bounds, and that this is so may be understood hence: When the sun approaches that circle we name for Winter, and thence brings immoderate cold amongst us who dwell that much nearer it, what cold may we imagine in those lands that lie still further beyond us? Inasmuch as what holds in this part of the globe we may deem likewise to hold in the other, both being subject to the same effects. Hence we may understand how the greatest cold is to be met with in that region, and the most genial heat below the Summer Tropic, where the earth is inhabited. And we are witness how they who dwell near-

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est the bounds of the arctic are accustomed to wear breeches and raiment of that sort, while the very flesh of those who dwell nearest the Summer Tropic — the Aethiopians — is charred.

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It follows that to enjoy the most temperate possible climate, one must keep between the Arctic Circle and Summer Tropic, where such a balance obtains: for there the Arctic Circle's cold and the heat of the Summer Tropic, mixing together, give rise to a middle region of such temperateness as to be habitable. As the sun withdraws from these lands, of course, and can no longer beat back the rising winds, we are naturally enough afflicted with winter. But since it comes within the scope of our discussion, let us consider another possibility, namely, that lands lying between the Winter Tropic and the Antarctic Circle might likewise be fit for habitation, circumstances there befalling in much the same way. No one, indeed, maintains the certainty of this, nor can anyone make his way there through the intervening lands, which are torrid and desolate. But as we find our own part of the globe so habitable, we may suspect that distant one to stand in a similar condition.

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SINCE NOW WE HAVE
treated of all that we set out to do, touching the
earth's position in and along with the whole sphere,
we shall go on to name one by one the constellations
that are in it. And of these we shall first speak of the
two Bears, and the Dragon; next of the Bear Keeper,
and with him the Crown; and of him whom we call the
Kneeler; next of the Lyre, with the Swan, too; and of
Cepheus, his wife Cassiopeia, his daughter Andromeda,
and Perseus his son by marriage. Our account
proceeds to the Charioteer (called *Heniochus* by the
Greeks); and after him the Snake handler, with the
Eagle, the Arrow, and the little Dolphin; thence to
the Horse, together with the constellation called the
Triangle. Having accounted for these figures, we go
on to the twelve signs, which are Aries, Taurus,
Gemini; then Cancer, with Leo and Virgo; next Libra
(which is the half of Scorpio) and Scorpio himself,

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with Sagittarius and Capricorn; then Aquarius, who with Pisces fills out their number. When we have made our tally of these, we turn in due course to the Whale, along with the starry river Eridanus, and the Hare; and after them to Orion, with the Dog and the constellation called Procyon. Argo follows, with Centaur and the Altar, and after them Hydra and the Fish which is called, after Notus, the Southern.

Of all these it has seemed not unprofitable to us to tell the tales here: which must serve either to acquaint the reader with much lore, or at least to delight him with their pleasantness.

Now then, as we promised, we begin with ARCTUS MAJOR, the *Greater Bear*—she, that is, to whom Hesiod gives the name Callisto, daughter of Lycaon who ruled in Arcadia. Having been brought up to follow the hunt, she at length sought out Diana, and the goddess took no middling pleasure in one who so much shared her own nature. Presently, however, Jove embraced her in love, the outcome of which was soon betrayed to Diana: indeed, Callisto could conceal it no longer as the day of her delivery neared, for her belly grew great, and one day as she was refreshing her sport-weary limbs in the river, where she was wont to take her ease, Diana observed that she had surely not kept her maidenhood. The goddess dealt her punishment according the gravity of her suspicions, stripping her of her maidenly form and changing her into a bear, which in Greek is ΑΡΚΤΟΣ, or Arctus: and in that shape she bore her boy-cub, Arcus. But as Amphis, the comic writer, tells it, Juppiter, in the likeness of Diana, following the maiden as she

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went out hunting, came as if to assist her when she was away from her companions, and there embraced her. When asked by Diana what had befallen her, that her belly was grown so swollen, Callisto replied that it was Diana's own doing, and for this answer Diana changed her shape as we have told. Now at any rate as she wandered the woods, a wild beast, she was caught by certain Aetolians, and led away with her son as a present to Lycaon in Arcadia. By the same account, unwitting as she was of the law, she betook herself into the temple of Lycaean Jove, whither her son followed her without delay. So it came about that when the pursuing Arcadians sought to make an end of her, Juppiter, mindful of his wrongdoing, snatched her away, together with her son, and placed them among the stars: she to be the Bear and her son the Bear Keeper, of whom we shall have more to say presently. Some indeed have said that when Callisto succumbed to Jove's embrace, it was Juno who in her outrage changed her into a bear; coming upon whom as she hunted, Diana slew her. Too late recognized, she was afterward set among the stars.

Still others say that when Juppiter gave Callisto chase through the woods, Juno, jealous of what would follow, did all she could to seize him by surprise and expose him. But Jove, never hard put to hide his wrongdoing, forsook Callisto, transformed now in the shape of a bear. Juno, then, finding the bear where a maiden had been, led her before Diana, that the divine huntress might slay her. But a regretful Jove, when he saw what was done, carried her off and appointed her, shaped in Bear's likeness, to the stars.

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This constellation, as many have attested, never sets; and those who would explain how this has come about say that Tethys, wife of Ocean, will not accept it, though the rest of the constellations come to her in setting; for Tethys was Juno's nurse, in whose place Callisto yielded herself as mistress. Araethus of Tegea, however, recorder of these tales, gives her name not as Callisto, but Megisto; and makes her not Lycaon's, but Ceteus's daughter, and Lycaon's grand-daughter. Besides this he says that Ceteus himself is he that we call Engonasin; but in the rest, his account agrees with our own foregoing. The whole affair is held to have taken place in Arcadia, on Mount Nonacris.

ARCTUS MINOR, the *Lesser Bear*. Aglaosthenes, who composed the *Naxica*, calls this figure Cynosure, one of Jove's nurses, the nymphs of Ida; and says that after her name also, in the city called Histoë, founded by Nicostratus and his companions, both the port and a great part of the land are named Cynosure. She was also numbered among the Curetes, Jove's ministrants. Some say, for that matter, that the nymphs Helice and Cynosure were Jove's nurses, who for their service were placed in the heavens; and call them the two Bears — whose stars among us are known as the Seven Plough-Oxen.

But many compare the Greater Bear to a wain, and so the Greeks called it, 'ΑΜΑΞΑ, for which name the following tale comes down to us: Those who at the first observed the constellations and reckoned the numbers of stars in their bodily images, named it, not the Bear, but the Wain, because of its seven stars two appear equal, right alongside each other, and these

they took for oxen; while of the five remaining they made the likeness of a wain. And the more so, then, were they fain to name the sign nearest it the Oxherd, of whom we shall tell further. Aratus, indeed, speaks of it neither as Oxherd nor Wain on this account, but remarks that the Bear appears to wheel, wain-like, round the pole we call Boreus, and that the Oxherd may be said to drive it; in which he appears to make no middling error. For according to Parmeniscus, there are twenty-five stars, beyond these seven, that have been assigned by various astronomers to the image of the Bear; these seven alone do not complete it. So, at any rate, he who had been called the Oxherd, following along before the wain, came to be called the Bear Keeper, just as in the days of Homer the other had been called the Bear. For of the Seven Plough-Oxen Homer says, 'they are alike called by name, the Bear or the Wain'—but of the Oxherd's being called the Bear Keeper he nowhere bethinks himself to make mention.

Now many have gone astray in accounting for the Lesser Bear's other name, the Phoenician: for they who observe her are known to steer neater and truer than others. Why then, you may ask, if she be more trustworthy than the Greater Bear, do not all men heed her? Instead they seem quite unwitting of why she comes to be called the Phoenician. Thales of Miletus, indeed, who was most careful in his enquiries into these matters, and who first called her the Bear, was Phoenician by birth, according to Herodotus. Therefore all who dwell in the Peloponnesus make use of the first of the Bears; while the Phoeni-

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cians, referring to their own countryman's discovery, marked this one well; and the more carefully they followed her, the truer to course they steered their ships, by common witness. Rightly then, do they call her the Phoenician, after the race of him that discovered her.

Serpens, or DRACO, the *Dragon*, sprawling its bulk where it winds in between the two Bears, is said to guard the golden apples of the Hesperides: having been slain by Hercules and placed among the stars by Juno, because it was she who had sent Hercules on his quest after them. It was wont, by this account, to watch over the gardens of Juno; Pherecydes, indeed, says that when Juppiter took Juno to wife, Earth came bearing boughs of golden apples, which Juno, admiring, besought Earth to set in her gardens far off on Mount Atlas. And as Atlas's daughters frequented there gathering apples from the trees, Juno is said to have set this guardian there. The sure sign of which will be the image of Hercules that is to be seen above the dragon, as Eratosthenes points out; and on this account especially, anyone may conceive how it is properly called the Dragon.

Some have even said that this dragon was set to oppose Minerva by the giants, when she assailed them: whereupon Minerva seized up and cast the writhing dragon to the stars, and fixed it to the very axis of the heavens. To this day it appears thus entwined by its coils, as if but lately borne aloft to the stars.

Of ARCTOPHYLAX, the *Bear Keeper*, giving him the name of Arcas, son of Callisto and Jove, they tell how, when Juppiter came as a guest, Lycaon cut the

lad up in pieces with the other viands, to serve at the banquet, seeking to know if it were a god indeed who thus tried his hospitality. And for his deed no mean punishment was visited upon him: for at once Juppiter, overturning the table, consumed the house with his thunderbolt, and transformed Lycaon himself into a wolf. But the limbs of the boy he regathered and rejoined, giving him to a certain Aetolian man to rear.

And when Arcas had grown to young manhood, and was hunting in the forest, he came unwittingly upon his mother, now changed into the shape of a bear. He gave chase, thinking to slay her, even into the temple of Lycaean Jove, wherein whosoever should venture must, by Arcadian law, be put to death. And so since both must now be destroyed, Jove, taking pity on them, caught them up and set them among the stars, as we have recounted. Accordingly he is to be seen following the Bear, and as he watches over Arc-tus he is called Arctophylax.

Some have called him Icarus, father of Erigone, to whom, for his adjudged uprightness and piety, Father Liber bequeathed the gift of wine — both the vine and the clustering grape — that he might show men the manner of tending it and how that which is produced of it ought to be used. And when he had set out his vines and, most carefully plying his pruning-hook, had brought them to flourish, a he-goat, it is said, broke into his vineyard. Finding out all the tenderest leaves, he cropped them: upon which Icarus, galled at heart, took and slew him, and from his hide fashioned a bag. Filling it with air, he bound it and flung it into the midst of his companions, whom he ga-

thered about to dance, capering, round it; and so Eratosphenes says,

ΙΚΑΡΙΟΥ ΠΟΣΙ ΠΡΩΤΑ ΠΕΡΙ ΤΡΑΤΟΝ ΩΡΧΗΣΑΝΤΟ—
round Icarus's goat they first set foot in the mime-dance.

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Others say that Icarus, when he received the gift of wine from Father Liber, straightway loaded full wine-skins onto his oxcart, and for this reason is called Boötes, the Oxherd. And as he traveled round the Attic countryside, he displayed his wares to the herdsmen; some of whom, growing greedy, got carried away with the new kind of draught, till, waxing ever more stupefied, they slept: sinking here and there by the wayside, their limbs asprawl as if they lay half-dead, uttering things other than seemly. To the rest of the herdsmen it appeared that Icarus had given their comrades poison, in order to make off to his own country with their herds; so they killed Icarus and cast him down a well—others point out a certain tree beside which they are said to have buried him. Those who had lain asleep, meanwhile, awakened, declaring that toil had never brought them such sweet rest, and asked for Icarus, that they might reward him for his kindness. His killers, pricked by their inmost conscience, straightway gave themselves up to flight, and so came to the isle of Ceans, by whom they were taken in as guest-friends, and there made their home.

But when Erigone, Icarus's daughter, saw that he had not returned and was compelled by longing for her father to set out following him, Icarus's dog, whose name was Maera, returned home howling, as if to mourn her master's death. To Erigone this gave by no means the least testimony to her fell suspicions; for,

timid girl as she was, she could scarce suspect other than that her father had met with some violence, when he had been absent now so many days and months together. The dog, now taking her mistress's garment in her teeth, led her to her father's body: no sooner did she behold which than, giving over all hope and overcome by her loneliness and poverty, she abandoned herself to her misery with many a tear, and from the same tree below which her father lay buried, hanged herself and died; and the dog by her own death honored in spirit her mistress's. Some indeed have said that she threw herself into the well, which was named Anigrus: for which reason, as the tale comes down to us, no man afterward would drink from that well. But Juppiter, taking pity on their fate, shaped them bodily again in the stars. And so many have called Boötes, Icarus, and Virgo (of whom we shall shortly speak), Erigone. The dog, as she figures in the tale, they have called Canicula; but the Greeks, because it rises before the Greater Dog, call it Procyon. Others say it was Father Liber who transfigured them among the stars.

Meantime throughout the Athenian countryside maidens fell to taking their own lives by hanging, one after another, without cause; for the dying Erigone had prayed that the daughters of Athens should be visited with just such a death as she was bound to suffer, unless they would pursue and avenge the death of Icarus. And when it so befell as we have said, Apollo, at their entreaty, instructed the Athenians that if they wished to be freed from this doom they must make satisfaction to Erigone. And since she had hanged

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herself, they decreed the practice of dangling themselves from ropes, with planks hung between them, so that he who hangs there might sway the more in the wind. This is the sacrifice they solemnly ordained, and so they do both in private and in public, calling it the Aletidas after her who, estranged and alone, with only her dog for companion, went out in search of her father, like a beggar: for the Greeks call such ΑΛΗΤΙΔΑΣ.

It followed afterward that Canicula arose scorching over the Cean countryside, bereaving the fields of their fruits, and wreaking sickness among them, in measure for the pains of Icarus, because they had welcomed the brigands. Their king, Aristaeus, son of Apollo and Cyrene and father of Actaeon, besought his father to know what he should do to free his country of its calamity: the god bade him atone for Icarus's death with many sacrificial victims, and entreat Jove that, at the season of Canicula's rising he should send forty days' wind to ease its heat: which command Aristaeus followed in full, and so obtained from Jove the winds that blow every year throughout the Dog Days. Some have called these the Etesian winds, because they rise every year just at this season — ΕΤΟΣ in Greek meaning 'year.' Still others have called them Etesian because they were so earnestly desired of Jove that he granted them. But let us leave this unresolved, lest we be thought to have forestalled all.

To return, then, to the matter at hand: Hermippus, who wrote of the constellations, tells how Ceres lay with Iasion, son of Thuscus; for which Homer,

among many, says that he was struck by the thunder-bolt. From their union, according to Petellides of Knossos, recorder of these tales, two sons were born,

Philomelus and Plutus, who (so they say) were never at peace with each other: for Plutus, who was far the wealthier of the two, gave his brother nothing of all his wealth; so that Philomelus, compelled by his need, bought two oxen of his brother with what little he had, and himself devised the first oxcart. By this means, ploughing and husbanding his fields, he fed himself. His mother, marvelling at his ingenuity, set him still at his ploughing among the stars, and called him the Oxherd. Of him, as they tell, Parias, the *Pro-ducer*, was born, who gave the Parians and the town of Parion his own name.

CORONA, the *Crown*. It is held that this is Ariadne's crown, set among the stars by Father Liber. When Ariadne was wed to Liber on the isle of Dia, as the story goes, she received this crown first among all the presents the gods made her, as a gift from Venus and the Hours. But the author of the *Cretica* says that it was when Liber came to Minos, meaning to lie with Ariadne, that he gave her this crown in gift; and she was so delighted with it that she did not refuse his condition. It is even said that Vulcan wrought it, of gold and gems of India; by whose lustre Theseus is held to have made his way out of the labyrinth's gloom to the daylight, for the gold and the gems glittered even in the darkness.

They who composed the *Argolica*, however, make this account of it: When Liber was allowed by his father to lead Semele, his mother, back from the Un-

derworld, seeking the way down to those regions he came to Argolis, and there in his way met with a certain man by the name of Hypnolipnus — a man worthy of that Age — who would show him the pathway he sought. But Hypnolipnus, gazing on him — a mere boy in years, yet surpassing all others in the wonderful beauty of his body — asked of him in fee what might be given without any loss to him. Liber, now, longing only for his mother, swore that should he lead her forth again, he would do as the man desired; such-wise as a god might swear to a shameless man. Upon which Hypnolipnus showed him the way below. And so when Liber came to the place and made ready to go down, he left there the crown which he had received from Venus; whence the place is called ΣΤΕΦΑΝΟΣ, *the Crown*. For he feared to carry it with him, lest the immortal gift should be defiled by the touch of the dead. When he led forth his mother again unharmed, then, the tale goes, he set the crown among the stars, that it might forever evoke the memory of her name.

Others call this the crown of Theseus, which accordingly is set next him — for the starry figure known as Engonaisn (of whom we shall have more to say) they deem to be Theseus. As they tell it, when Theseus was come to Minos in Crete, along with the seven maidens and six other youth, Minos was so taken with the fairness of one of the maidens, named Eriboea, that he lusted after her. But Theseus would not brook his desire, speaking as the son of Neptune and one most worthy to take issue with a prince, on the maiden's behalf. Then the dispute turned no longer on

the maiden, but on the lineage of Theseus, and whether or no he was indeed Neptune's son. Minos, as they tell, slid a golden ring off his finger and cast it into the sea; and he charged Theseus to fetch it back, if he wished Minos to believe him the son of Neptune: as for himself, he was ready to show that he was begotten of Jove. And so Theseus, in supplication to his father, asked some satisfactory sign of his being born of the god: and at once thunder and lightning gave token of assent through the skies. Then, with like resolve, Theseus cast himself into the sea, without any prayer or ceremony towards his father; whereupon a great school of dolphins at once came rolling their way upon the swell roundabout him, and led him through the gentled waves to the Nereids. From them he bore back not only Minos's ring, but a crown from Thetis, sparkling with many gems, which she had received from Venus as a wedding-gift. But others say that he received the crown from Neptune's wife, and that Theseus gave it in gift to Ariadne when she was betrothed to him in reward of his manliness and great spiritedness; and that after Ariadne's death Liber set it among the stars.

ENGONASIN, the *Kneeler*. Eratosthenes calls him Hercules, poised above the Dragon (whose tale we have already told); and says that he stands ready there to do battle with it, with the lion's pelt in his left hand and his right holding the cudgel. For he aims to slay this dragon-watchman of the Hesperides, which was thought never to close its eyes in sleep — all the more proof of its being set there as a guard. Panyasis, in his *Heraclea*, says of this constellation that Jupiter so

marvelled at their struggle that he raised it up among the stars. And truly here the dragon rears up its head, while Hercules rests on his right knee, striving to hold down the right side of its head with his left foot; his right hand upraised, as if to smite, while his left holds out the lion's pelt — altogether as if locked in mortal struggle. Although Aratus denies that anyone can prove who he may be, nonetheless we may hope to show at least that some of our account is plausible. Aratus, as we have earlier said, says that this is Celeus, Lycaon's son and Megisto's father, who appears lamenting his daughter's transformation into bear-shape: sunk on his knee, and with his outspread palms raised heavenward, as if beseeching the gods to restore her. Hegesianax, however, says that this is Theseus, who appears lifting up the stone at Troezen, below which it was thought that Aegeus had placed a pair of shoes and a sword, warning Aethra, Theseus's mother, not to send the boy to Athens until by his own manhood he could lift the stone and return to Athens with his father's sword. So we see him here straining to raise the stone as high as he can. Following this account, moreover, some have said that the Lyre, which is set next this constellation, is Theseus's; being that he was versed in every art, and would surely have mastered the lyre, too. And so Anacreon seems to attest —

ΑΓΧΟΤ Δ' ΑΙΓΕΙΔΕΩ ΘΗΣΕΟΣ ΕΣΤΙ ΛΥΡΗ—
and near Theseus, Aegeus's son, there is a Lyre.

Others say that he is Thamyras, blinded by the Muses, and sunk to his knees in supplication; still others, Orpheus, who was slaughtered by the Thra-

cian women when he witnessed the rites of Father Liber. But Aeschylus, in his drama ΠΡΟΜΗΘΕΥΣ ΑΤΟΜΕΝΟΣ, *Prometheus Unbound*, calls him Hercules, locked in combat not with the dragon, but with the Ligurians. For he says that when Hercules went to carry off the cattle of Geryon, he took his way through Ligurian territory, and they in turn tried to take the cattle from him; he lay to with his own hands, and killed many besides with his arrows. But when his shafts had given out, Hercules fell to his knees, outwearied by the hordes of the barbarians and his own want of arms, and having taken many wounds already. But Jove, pitying his son, took care that there should be stones in great plenty round him, with which Hercules defended himself till the enemy took to flight. And thus Jove portrayed them, embattled, in the stars.

Some withal have called this constellation Ixion, bound by his arms, who ventured his strength against Juno; and others, Prometheus, bound upon Mount Caucasus.

LYRA, the *Lyre*, was set among the stars, according to Eratosthenes, for this reason: It was first fashioned from a tortoise-shell by Mercury, then handed down to Orpheus, son of Calliope and Oeagrus, who made its study his chief devotion. It is held that even wild beasts were enticed by his art to stop and listen; and that, seeking for his dead wife, Eurydice, he went down to the Underworld, where he sang the praises of the children of the gods — all but Father Liber: him he overlooked in a fit of forgetfulness, as Oeneus had Diana, when he made his sacrifices. And so afterward,

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it is told how as Orpheus pleased himself with song
— many have said it was on Mount Olympus, which
divides Macedon from Thrace; but Eratosthenes puts
it on Pangaeum—Liber roused his Bacchantes against
him, to tear him limb from limb. But others say it
was because Orpheus had witnessed their Bacchic
rites that this fate befell him. The Muses, in any case,
gathered up his limbs and gave them burial; and as
the greatest boon in their power, they set the image
of his lyre amid the stars as memorial, with Apollo's
and Jove's blessing. For Orpheus had praised Apollo
most of all the gods, and as for Juppiter, he granted
this favor to his daughter.

Others tell how, when he first wrought the lyre on
Mount Cyllene in Arcadia, Mercury set seven strings
to it after the number of the Atlantides, because Maia
was of their number, who was Mercury's mother.

Afterward when he drove away Apollo's cattle, and
was caught by him, Mercury granted Apollo's request
and allowed him the honor of having invented the
lyre, that he might more readily pardon him; and in
return he received a kind of staff. Passing along
through Arcadia, holding this staff in his hand, he
spied two serpents locked in struggle between them-
selves, their bodies all intertwined, the one grappling
the other. He threw his staff down between the two of
them and, lo, they left off fighting; and so he said of
the staff that it was appointed to make peace. Some,
accordingly, fashion the herald's staff, the caduceus,
thus, with two serpents twined about it, because it
seemed to Mercury to have brought peace. On his
example, too, in athletic contests and events of

that kind, they customarily carry a staff.

But to return to our subject, Apollo, having accepted the lyre, as it is told, taught Orpheus to play it; and afterward when he invented the cithara, yielded up the lyre. Some indeed say that Venus came once, with Proserpina, seeking Jove's judgment, to which of them he would grant Adonis. Jove appointed the Muse Calliope their judge, Orpheus's mother; and she pronounced that each of them should possess him for half the year. Venus, incensed to find herself slighted in what she thought rightfully hers, inspired all the women of Thrace, love-crazed, to fall each for herself upon Orpheus, till they had torn him limb from limb. His head, borne down from the mountains to the sea, was cast up by the waves on the isle of Lesbos, whose people took it up and buried it: in reward for their good deed they are renowned still for their surpassing prowess in the musical arts. But his lyre, as we have said, was set among the stars by the Muses. Some say that Orpheus was bound to have outraged women by first teaching boyish love, and it was for this that he died by their hands.

OLOR. The Greeks call this constellation Cygnus, the *Swan*; but others to whom its tale was unknown have called it by the general term for bird, OPNIΣ. This is the story behind it, as it has been passed down in memory. When Juppiter, all lovestruck, first turned his attentions to Nemesis, but could not win her over to lie with him, he relieved himself in his love by this scheme. He bade Venus chase after him, in the likeness of an eagle, while himself, changed to a swan, took refuge with Nemesis as if fleeing the eagle,

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and settled himself in her lap. Nemesis did not spurn him then, but holding him in her embrace, fell into a torpid sleep; whereupon, as she slept, Jove had his way with her, and then flew off. And because men observed him flying so high in the sky, it was said that his place lay among the stars. So, that nothing be falsely spoken of him, Juppiter set the swan in flight, and the eagle in pursuit, just as they had been, in the heavens. As for Nemesis, befitting one united with bird kind, when her months were come to term she brought forth an egg. Mercury carried it off and brought it down to Sparta, where he dropped it into the lap of Leda where she sat. From it Helen was born, surpassing all women for beauty of figure; whom Leda called her own daughter. Others, however, have said that Jove lay with Leda herself when he took on the swan's form; we shall leave the matter unresolved.

CEPHEUS. Euripides, among others, has pointed him out as the son of Phoenix, king of Aetheopia and father of Andromeda, whom all the best-known histories describe being exposed to the sea-serpent; and how, then, having delivered her from her peril, Perseus led her away as his wife. And so they on high numbered Cepheus, too, among the stars, that all that family might stand there forever.

CASSIOPEIA. Euripides and Sophocles, and many another, too, speak of her, who boasted that she outdid the Nereids in shapeliness. For this vaunt she was set amid the stars seated as it were in a pod; for, as the heavens turn, she is to be seen borne along prone on her back, in keeping with her impiety.

ANDROMEDA is said to hold her place among the

stars by the grace of Minerva, alongside the manly Perseus who freed her from peril when she stood exposed to the sea-serpent. Nor did she show him any less spirited goodwill for his fine deed: for neither her father Cepheus nor her mother Cassiopeia could persuade her to do other than follow Perseus, quitting parents and homeland alike. Euripides has written a play about her, suitably great in itself, which takes her name for its title.

PERSEUS is said to have come amongst the stars by virtue of his own nobility, as well as because of the untoward nature of the union he was born of. Sent out by Polydectes, son of Magnes, in quest of the Gorgons, he received from Mercury, who is held to have loved him well, the winged sandals and traveller's hat, and a helmet beside in which, when he donned it, he was nowhere to be seen by his enemy.

And so the Greeks called the helmet ΑΙΔΟΣ, *the Unseen*: not, as some have ignorantly interpreted it, that he wore the helmet of Hades himself — a thing no learned person could well accept. It is told that he received also, from Vulcan, a sickle forged of adamant, with which he slew the Gorgon Medusa.

But as Aeschylus the tragedian says, in his *Phorcydes*, the Graeae were the Gorgons' guardians (of whom we have written in the first book of our *Genealogiae*). They are thought to have had the use of but one eye amongst them, and to have kept watch, thus, each by turns taking up the eye. Perseus snatched it away when one of them was handing it to the next, and cast it into Lake Tritonis; the guardians being blinded, he readily smote the Gorgon as she lay heavy

with sleep. Her head Minerva is said to wear now, set upon her breast; Euhemerus goes so far as to say that the Gorgon was slain by Minerva; but of this we shall have more to say at another time.

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HENIOCHUS, the *Charioteer*, whom in Latin we call Auriga, is one Erichthonius by name, according to Eratosthenes. When Juppiter beheld him first among mankind to yoke horses to the chariot in teams of four, he marvelled that the ingenuity of a man should approach that of the Sun-god, who first among the gods used the four-horse chariot. Erichthonius not only introduced the team of four, as we have said, but also founded the sacrifices of Minerva, and her temple on the heights of Athens. Of his lineage Euripides recounts that Vulcan, smitten by the beauty of Minerva's body, besought her to marry him, but to no avail. Minerva indeed sought to hide herself in a place which, because of Vulcan's love for her, is called Hephaestius. Pursuing her there, they say, Vulcan offered her violence, and when he approached, full of passion, to embrace her, she repulsed him, and he spilled his pleasure instead upon the earth: whereupon Minerva, beside herself with shame, cast the dust over it with her foot. Hence, in due course, sprang the serpent Erichthonius, who takes his name both from the earth and from their struggle. Minerva, it is told, concealed him in a little chest, as if in keeping for the Mystery-rites; which she brought to the daughters of Erechtheus, and gave it them for safekeeping, forbidding them to open the cofferlet. But as man is impatient by nature, and the oftener forbidden, the more he longs to do, so the maidens opened up their

chest and beheld the serpent; no sooner having done which than they hurled themselves, maddened by Minerva, off the heights of Athens. But the serpent took refuge on Minerva's shield, and was reared by her thenceforward.

Others, however, have made no more of it than to say that Erichthonius had snakes for legs, and that in the prime of his youth he founded the Panathenaic Games in Minerva's honor, himself racing with the four-horse team; for these accomplishments, so they say, he was placed among the stars. Some beside, who have written of the constellations, have named him Orsilochus, an Argive by birth, who they say was the first to use a four-horse chariot, and holds his place in the stars for that reason. Still others identify Auriga as the son begotten of Clytie by Mercury, whose name was Myrtilus, charioteer of Oenomus; and upon his death, they hold — the tale of which all men know — his father placed his body in the heavens.

A goat appears standing on his left shoulder, and in his right hand the shapes of two kids, of whom some tell this tale. There was a certain Olenus, a son of Vulcan, to whom were born the nymphs Aex and Helice, who became Jove's nurses. Indeed some have said that there are cities named after them — Olenus, in Aulis; Helice, in the Peloponessus; and Aex in Haemonia — of which Homer speaks in the second book of his *Iliad*. Parmeniscus, on the other hand, says that Melisseus was once king in Crete, to whose daughter Jove was brought to be nursed. But finding herself without milk, she put him to a goat, Amalthea by name, who is said to have reared him thenceforth.

She, now, was wont to bear twin kids, and so she had just done when Juppiter was brought her to nurse. So, then, for the kindness of the mother, the kids, too, were set among the stars. Cleostratus of Tenedos is said first to have marked them amid the stars.

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N Musaeus, however, says that Jove was nursed by Themis and Almathea, a nymph, to whom Jove's mother Ops had entrusted him, as men say. But this Amalthea kept a certain pet goat, which is said to have nursed Jove. Some have even called Aex the daughter of Sol, surpassingly fair of body, but above that most horrible of visage, quite belying that beauty. The Titans themselves stood in terror of her, and begged the Earth to cover her over bodily, as the tale goes; and so Earth hid her away in a cave on the isle of Crete. Yet afterward she became Jove's nurse, as we have seen her accounted to be. Now when Juppiter, trusting to his youth, readied his war against the Titans, it was prophesied him that if he wished to prevail he should wage the war shielded by the hide of ΑΙΓΟΣ, that is, *aigos*, a goat — and by the Gorgon's head, which the Greeks called the Aegis. Having got these, as instructed, Juppiter overcame the Titans and gained his throne. Thereupon enclosing the boney remains of the goat, or ΑΙΓΟΣ, in the goat-skin, he gave it life, and committed its image to the stars for a remembrancer. Later he granted Minerva his shield in victory.

Euhemerus tells of one Aex, Pan's wife, who, being embraced by Jove, bore a son whom she called her husband Pan's; and so the boy was called Aegipan. Jove, who himself was called Aegiochus, the Aegis-

bearer, so delighted in his son that for his memory's sake he set the figure of the goat among the stars.

OPHIUCUS, who by our writers is called the *Snake-handler*, is placed above Scorpio, holding in his hands a serpent which coils round his body at the waist. Many have called him Carnabon, who was king of the Getae in Thrace, and came to power just at the time when (as they reckon) the seeds of the earth's fruits were first given into mortal hands. For when

Ceres was lavishing her bounties upon mankind, she bade Triptolemus, whose nurse she herself had been — and who, ensconced in a dragon-drawn chariot, is said first to have availed himself of the wheel, so as not to lag in his course—to go round through all nations, sharing out her seeds; by means of which themselves and their descendents might more easily raise themselves up from lives of savage fare. When he came to this man, whom we have said was king of the Getae, he was at first received hospitably; but presently, they treacherously seized him, not as one who had come in innocence and goodwill, but rather like some pitiless foe; and so he who was prepared to prolong the lives of others nearly lost his own. For at Carnabon's command one of the dragons was slain, so that Triptolemus, once he became aware of the treachery awaiting him, might not hope to save himself in the chariot that had been provided him. It is told how Ceres came to him then, and seizing his chariot, restored it to him, supplying the place of the lost dragon with another; and for his wicked plot wreaked no mean punishment upon the king. For, as Hegesianax says, Ceres shaped Carnabon in the stars as a remind-

er to men, grasping the dragon in his hands as if to kill it; as for himself, he lived so bitterly that most happily at last did he seek his own death.

P Others make him out to be Hercules, beside the river Sagaris, in Lydia, slaying the serpent which had gone rampaging along the banks, killing many men and destroying the crops. For his deed Omphala, who reigned there, sent him back to Argos laden with gifts, while Jove, for his daring, placed him among the stars.

C Some, moreover, have called him Triopas, king of Thessaly, who tore down the temple of Ceres established by his ancient forebears in order to get roofing for his own house. By this account, Ceres brought such hunger upon him for the deed that he could never after be sated with any amount of her fruits.

O Lattermost, then, toward the end of his days, a serpent was sent to visit him with many ills; so at last he won death, and by the will of Ceres was placed among the stars. There he appears still, entangled by the serpent, which eternally wracks him with his painful deserts.

N Polyzelus Rhodius, however, asserts that he is one Phorbas by name, who was esteemed so great a helpmeet to the Rhodians. For their isle was invaded by such hordes of serpents that its citizens called it Ophiussa; among which bestial horde there was a dragon of monstrous size, who had killed many of them; so that the countryside came at length to lie waste and deserted. Then Phorbas, son of Triopas by Hiscilla, the daughter born to Myrmidon, was cast ashore there by a storm, and slew this dragon, along with all

the rest. Being well beloved of Apollo, as is said of him, he was placed among the stars, to be remembered and honored as the dragonslayer. And so the Rhodians, whenever their fleet ventures far from their shores, first sacrifice in honor of Phorbas's coming thither, in hope that an exploit of such unlooked-for manfulness might befall their citizens, as that glory by which Phorbas, unwitting of his future fame, chanced to be raised aloft to the stars.

Many astronomers have conceived him to be Aesculapius, whom Juppiter set among the stars for Apollo's sake. For when Aesculapius lived among men, he so far excelled all others as a healer that he grew dissatisfied with his repute for relieving men's sickness, but must even call back the dead to life. So at last, it is told how he revived Hippolytus, who had been killed through his stepmother's fell rancor and his father's unwitting; Eratosthenes confirms this. Some have said that by his doing Glaucus, Minos's son, lived again. For this, as for a sin, Jove consumed his house with a thunderbolt; yet for his art, and for his father Apollo's sake, he set him among the stars, holding the serpent. Now some have explained his holding the serpent thus: under compulsion to revive Glaucus, he was shut up in a secret place where, clutching his staff, he bethought him what to do. There came a snake gliding up onto his staff, which Aesculapius, in his troubled state of mind, killed, striking it again and again with his staff as it fled. But soon, according to the tale, there came another snake to him, bearing in its mouth an herb, which it laid upon the other's head; and when it had done so, both of them fled the

place. Whereupon Aesculapius, using this same herb, revived Glaucus, too. And so the serpent is said to be placed in Aesculapius's protection, and with him, too, in the stars. And his descendents, guided by this custom, have passed down to others the use of snakes in their medicine.

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SAGITTA, the *Arrow*, they claim, is one of Hercules's weapons, with which he is said to have killed the eagle that fed at Prometheus's liver in that tale. Of him we may not unprofitably tell further. Now the ancients, when with most reverent ceremony they conducted the sacrifices of the immortal gods, customarily burnt their victims up altogether in the ritual flames. And so it came about, seeing that the poor could scarce afford the costly magnificence of sacrifice, that Prometheus, who by his wondrous surpassing genius is thought to have fashioned man himself, with much pleading won from Jove that a part of the victim be cast upon the fire, but a part also be reserved for their own victuals: which custom later confirmed in practice. Now as he had won this boon from heaven with ease, and not as a greedy man, Prometheus himself immolated two bulls; and when he had first offered up their entrails on the altar, he heaped the remaining flesh of both bulls together, and covered it with one of the hides, while whatever bones there were he enclosed with the remaining hide. Then, placing both piles in their midst, he gave Jove the privilege of choosing which of them he would. This time Juppiter did not do as one with divine knowledge should do, nor as befits a god, who ought to foresee all things well ahead: rather, if we are to

believe the tale in this as at first, he was cozened by Prometheus, and, thinking that in both heaps lay whole bulls, he chose the bones for his half. So it comes about since, that when the flesh of victims is consumed at solemn feasts and sacrifices, the rest, being the gods' portion, they cast upon the fire.

But to return to our story: once Juppiter realized what had happened, all wroth at heart he took back fire from mortal men, lest Prometheus's good name should seem to outweigh the power of the gods, and also, that the use of meat, since it could no longer be cooked, should have no further virtue for mankind.

But Prometheus, practiced in laying snares, schemed how, by his doing, fire might be restored to mortals.

And so, when the other gods were away, he stole up to Jove's hearth, and, joyfully bearing off an ember tucked into a fennel-stalk, more nearly flew than ran, tossing the stalk as he went so that its spark might not be stifled by its smoke, shut up in such narrow confines. (So even now men commonly make most speed who bear glad tidings.) Thereafter, on Prometheus's example, they took up the custom among runners vying in the games, of waving torches as they run.

In answer to this deed, Juppiter, by way of conferring an equal favor on mankind, bestowed woman, fashioned by Vulcan, and by the will of the gods endowed with every gift—whence she was called Pandora. But Prometheus he bound with iron fetters upon the Scythian mountain named Caucasus; where he lay bound, according to Aeschylus the tragedian, for thirty thousand years. Besides this he despatched

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an eagle to Prometheus, who fed at his liver — which was nightly renewed — without let. Some claim that this eagle was born of Typhon and Echidna; others, of Earth and Tartarus; while many say it was the work of Vulcan's hands, and that Jove bestowed life upon it.

But this account of Prometheus's unloosing has come down in memory. When Juppiter, drawn to her fairest body, sought Thetis in marriage, though he could not win over the timid maiden, yet he pondered no less how to have his way with her. The Parcae, then and there, pronounced what was fated, according as the nature of things should give out: they said that whoever should be wed to Thetis, his son would win wider fame than his father's; which Prometheus heard from where he kept vigil, not willingly, but perforce; and sent word of it to Jove. Fearing that likewise as he himself had done to his father Saturn, the same would now be done to him, Jove was forced to abandon his desire to make Thetis his wife, lest he be shorn of his patriarchy. And in deserved thanks to Prometheus for his good office, he freed him from his bonds. Yet he did not go so far as to leave him quite without fetters, having sworn as he did; but commanded Prometheus, as a reminder of his condition, to bind his finger with two things, stone and iron. Whence men took up the custom of wearing rings wrought of stone and iron, by which they would seem to make amends for Prometheus. Some have also said that he wears a wreath, as if he claimed himself the victor, having gone unpunished for his sin; and so men took up wearing wreaths when they most rejoice and triumph, as may be witnessed at athletic

games and banquets.

But let us return to the beginning of all this, the Eagle's death. Hercules, sent by Eurystheus after the Hesperidean apples but knowing no way thither, came to Prometheus, whom we have seen bound upon Mount Caucasus, and by him was pointed on his way. Victor at length, Hercules hastened on his way back, to tell Prometheus how he had slain the dragon (about which we spoke earlier), as well as to return thanks for his help. And there at a stroke he repaid him who so deserved the honor, so far as he was able to do, despatching the eagle; whence men have ordained that when victims are sacrificed, they should dedicate the livers on the altars of the gods, to appease them as they look on for the innards of Prometheus.

Eratosthenes recounts of the Arrow, moreover, that by it Apollo slew the Cyclopes who forged Jove's thunderbolt (by which many say Aesculapius died): upon which Apollo buried the arrow beneath the Hyperborean mount. But when Juppiter forgave his son, just at the season in which the fruits are setting, lo, the arrow came, borne on the breeze, to Apollo; and for this reason they point it out among the stars now.

AQUILA. This is the *Eagle* which is said to have carried off Ganymede and conveyed him to the doting Jove. She it was whom Juppiter first chose for his own, from among bird kind; who alone, as men report from time out of mind, dares fly into the rays of the rising sun. And so she appears in flight above Aquarius, whom many deem to be Ganymede.

Some, indeed, tell of one Merops, who held sway in the isle of Cos, and named it Cos after his daughter, and its folk Meropians after himself. He had, in any event, a wife named Ethemea, born of the race of nymphs, who when she left off worshipping Diana was struck by her shafts, and at length swept off alive to the Underworld by Proserpina. Then Merops, filled with longing for his wife, would willingly have brought death upon himself; only Juno, pitying him, changed him bodily into an Eagle and set him among the stars, lest, had she set him there in his human shape, he should no less remember his sorrow, and go on pining for his wife.

But Aglaosthenes, who wrote the *Naxica*, tells of infant Jove's being secretly taken from Crete and brought to Naxos, where he was nursed. When he had come to man's estate he conceived the desire to make war against the Titans; and as he was sacrificing he observed an eagle, taking whose flight as a good omen, he set it among the stars. Some, also, have told how Mercury (others say it was Anaplates), smitten by Venus's beauty, fell in love with her; but when she brooked no advances from him, went about heavy-spirited, like one who has suffered disgrace. But Jove, taking pity on him, sent an eagle one day where Venus was bathing her limbs in the river Achelous; which bore away her slipper into Egyptian Amythaonia and there gave it to Mercury. Venus, now, coming to her suitor in search of it, fetched him his opportunity at last; for which good office Mercury set the eagle in the heavens.

Eratosthenes, not alone, gives this account of how

DELPHIN, the *Dolphin*, holds his place among the stars. Neptune, when he sought to make Amphitrite his wife — while she, wishing only to preserve her maidenhood, was fled to Atlas — despatched many in search of her, among them one Delphin by name. Having wandered through the isles, he came at last upon the maiden, persuaded her to marry Neptune, and conducted the nuptials himself; and for this service Neptune set the figure of Delphin among the stars. And more than this: for they who make images of Neptune, as we are all witness, include a Dolphin, whether at his hand or his foot, as they deem most pleasing to the god.

But Aglaosthenes, who wrote the *Naxica*, says that there were certain Tyrrhenian shipmasters who took Father Liber aboard, as a boy, to transport him with his comrades to Naxos, and there entrust him to his nurses the nymphs — by whom both writers of our day and many of the Greeks as well, in their genealogies of the gods, agree that he was reared. But to return to our story: the shipmasters, tempted by the prospect of plunder, were about to turn their ship off course when Liber, suspecting as much, bade his comrades strike up a song in harmony. The Tyrrhenians took such deep delight in this unheard-of music, that they gave themselves up to wild dancing, till, unwitting what they did, they leapt into the sea, and thereupon were made dolphins. Since Liber wished to keep the remembrance of them in men's minds, he placed the figure of one of them among the stars.

Still others say that this is the dolphin which bore Arion, the cithara-player, across the Sicilian sea to

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Taenarum. Surpassing artist that he was, he wandered throughout the isles for his living; but his servants, deeming a treacherous liberty pleasanter than complacent service, laid plans to cast their master overboard and apportion his goods amongst them. When Arion grew wary of their plot, he asked them, neither as a master would his slaves, nor an innocent man would villains, that he might be allowed to adorn himself, as he had oft done, in victor's garb: since there was none who could accompany him to his fate, lamenting, so well as himself. Having been granted his request, he took up his cithara and began bewailing his own death; and at the sound dolphins gathered on the sea from far and wide to swim alongside Arion as he sang. Calling upon the dominion of the immortal gods, Arion threw himself down upon them, one of whom, taking him up, bore him ashore at Taenarum. In his memory the statue of Arion stands there, wherein he is to be seen astride the likeness of the dolphin. And for this reason the figure of the dolphin was traced in the stars by ancient astronomers. As for the servants, who thought to slip themselves so from his service, they too were driven by a storm to Taenarum where, recaptured by their master, they suffered no mean punishment.

EQUUS, the *Horse*. Aratus and many another have called this constellation Pegasus, offspring of Neptune and the Gorgon Medusa: who on Mount Helicon in Boeotia, striking the rock with his hoof, started up the spring which is called Hippocrene after him.

Others tell how, when Bellerophon came to Proetus, son of Abas, king of Argos, Antia, the king's wife,

smitten with love for her guest, begged him to make free with her, promising him her husband's throne. But when she failed to win him over by truth, she took care that he might not reproach her before the king, telling Proetus that he had offered to violate her. Because Proetus esteemed him, and was loath to exact punishment himself, he sent Bellerophon (knowing the mettle of his mount, Pegasus) to Iobas, Antia's father — others have called her Sthenoboea; whom he charged to defend his daughter's virtue by sending Bellerophon to destroy the Chimaera, which was then laying firey waste the Lycian fields. From that trial Bellerophon emerged the victor, and then created the spring in his attempt to gain heaven in flight; nor did he come much short of it — only, glancing down earthward, it is said, he shuddered with fright and fell, and with that perished. But the winged horse is held to have mounted up and been set amid the stars by Jove. Others have said that Bellerophon fled Argos, not under Antia's accusation, but to be spared her entreaties. Euripides, moreover, in his *Melanippe*, says that Melanippe herself, the centaur Chiron's daughter, was long ago known as Thetis; and that, reared upon Mount Pelion, and taking the chase as her chief study, she came once to be seduced by Aeolus, Helen's son and Jove's grandson. And when she drew near to term she fled into the woods, that her father, who trusted to her maidenhood, might not see her bear his grandchild. And so when her father came searching for her, it is said that she asked the divine powers that she might not be discovered in childbirth; and by the will of the gods, having

given birth, she was changed into a mare, and set among the stars. Some have said that she was a prophetess, and was changed into a horse because she was wont to reveal the gods' counsels to mortals. But Callimachus says it was because she gave up the chase and the cult of Diana that she was changed into that shape. By the earlier account, in any case, they explain why she lies out sight of the Centaur (whom some have called Chiron); and at that appears only halfway, that she might not even be known to be female.

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DELTON. This constellation is in the shape of a triangle, like the Greek letter after which it is called. Mercury is held to have placed it above the head of Aries, that the latter in his dimness might be marked by its brightness, wherever he may stand; and also that it should form the first letter of Jove's name, which in Greek is ΔΙΟΣ. Some have said that it represents the territory of Aegypt; others, where the Nile bounds Aethiopia and Aegypt; others deem it to represent Sicily; and still others have said that it is because the High Ones divided the earth's orb threefold that the three angles so stand.

ARIES is held to be the *Ram* who bore Phrixus and Helle over the Hellespont, and to whom Hesiod and Pherecydes attribute the golden fleece—but of that we shall elsewhere tell further. But Helle, many have said, falling off into the Hellespont and into Neptune's embrace, brought forth Paeon, whom some have called Edonus. Afterward Phrixus arrived safely in the kingdom of Aetes, sacrificed the ram to Jove and hung its fleece in his temple; while the figure of the ram itself, set among the stars by Jove the

Cloudgatherer, keeps the season of the year in which the corn is sown: inasmuch as before then Ino had sown it parched, who was the cause of its flight to begin with. According to Eratosthenes, the ram stripped off its own golden fleece and, giving it to Phrixus in remembrance of his rescue, mounted up to the stars; and that is why it shines there, as we have said, but faintly.

Some, now, say that Phrixus was born in the town of Orchomenos, which is in Boeotia, while others place his birth in the land of the Salones, in Thessaly. Others name Cretheus and Athamis among Aeolus's many sons; and still others call Salmoneus Athamas's son, Aeolus's grandson. Cretheus's wife, now, was Demodice, whom others call Biadice. Gazing upon Phrixus, the handsome son of Athamas, she fell in love, but could not manage to win him to her pleasure. And so she was obliged to accuse him before

Cretheus, saying that he had sought to force his manhood upon her, and things of that kind, such as these women were wont to say. Hearing this, Cretheus was wroth, befitting both his husbandly devotion and his crown, and persuaded Athamas to put Phrixus to death. But the Cloudgatherer intervened, and snatching up Phrixus and his sister Helle, set them astride the ram and bade them flee beyond the Hellespont as far as they could. Helle, falling, repaid her birthright to nature: after her Hellespont is named. But Phrixus came to Colchis, as we have recounted, and, killing the ram, set its fleece in the temple there. Mercury brought him to his father Athamas, whom he satisfied of having fled in confidence of his innocence.

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Hermippus, however, says that when Liber was embattled with Africa, he came with his army upon the place called Ammodes, on account of its exceeding sandiness. And there he entered the greatest peril, for he saw that he must needs force his way forward, yet would have to endure great dearth of water. As his ranks, all but driven to desertion by their hardship, were debating what they should do, a ram then chanced to approach the soldiers, wandering along by itself. No sooner did it spy them than it sought shelter in flight; but the soldiers who had spotted it, albeit they made but hard headway under the duress of heat and dust, nonetheless gave it chase, as if seeking booty among the flames, and pursued the ram as far as the place called after the temple of Jove Ammon which was later founded there. When they had reached this spot, they could nowhere find any trace of the ram they had followed thither; but, what was still more to their liking, they found a bountiful supply of water. Refreshed in limb, they went straightway to Liber with the news; and he, rejoicing, led his army to that precinct, and there founded the temple of Jove Ammon, whose likeness he fashioned having ram's horns. And he traced the ram's figure among the stars as well, so that when the sun should arrive in its sign, all things in nature would be revived, and spring-time come to pass: because by its flight the ram had revived Liber's army. He wished it, beside, to be the foremost of the twelve signs, who had proved himself the best leader of his troops.

But of the image of Jove Ammon, Leon, who writes concerning the Aegyptians, recounts thus: When Liber

held sway over Aegypt and the lands bordering it, and, as they say, first showed mankind all his arts, a certain Hammon came to Liber out of Africa, leading a great many sheep, the better to find favor with Liber and so come to be known as the inventor of something. And so, for his bountiful gift, Liber is held to have given him the lands lying opposite Aegyptian Thebes; and so that men may remember him who first taught them herding, they who make images of Hammon fashion them with horned heads. But those who would assign the deed to Liber — not as something desired by Jove Ammon, but rather brought before him at last — fashion horned images of Liber instead, and say that the ram was set to commemorate him among the stars.

TAURUS, the *Bull*, was placed among the stars, according to Euripides, because he bore Europa safely to Crete; but some say that when Io was changed into a cow, Juppiter, to make amends to her, placed among the stars one whose foreparts appear bull-like, while the rest of the body is but shadowily seen. There it gazes toward the sun's rising, in any case, and the stars which make up the image of its face are called the Hyades: whom Pherecydes of Athens points out as Liber's nursemaids, seven in number — they who before, in fact, had been the nymphs known as the Dodonidae. Their names are Ambrosia, Eudora, Pedile, Coronis, Polyxo, Phyto, and Thyone; they are said to have been fugitive from Lycurgus, and, all of them save Ambrosia, according to Asclepiades, to have taken refuge with Thetis. But Pherecydes says that, having brought Liber to Thebes, they entrusted

him to Ino, for which Jove in gratitude set them among the stars.

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The Pleiades were so called, according to Musæus, because to Atlas and Ocean's daughter Aethra, fifteen daughters were born; five of whom he considers the Hyades, because Hyas was their brother, most dearly beloved of his sisters. When he was killed in the course of a lion hunt, the five whom we named above are said to have perished in the throes of ceaseless lamentation; hence, for pining so grievously at his death, they are called the Hyades. As for the remaining ten sisters, they brooded over their sisters' deaths till seven of them, too, had brought death on themselves; and because so many of them suffered the same sorrow they were called the Pleiades. Alexander, however, says that the Hyades were so called because they were the daughters of Hyas and Boeotia; and the Pleiades, because they were born to Pleio, Ocean's daughter, and Atlas.

Though they are said to be seven in number, no one can see more than six of them; and this is the explanation that has been offered. Six of the seven lay with immortals — three with Jove, two with Neptune, and one with Mars — while the last one is accounted to have been Sisyphus's wife. Jove begat Dardanus by Electra, Mercury by Maia, and Lacedaemon by Taygete; while to Neptune Hyrieus was born of Alcyone, and Lycus and Nycteus of Celaeno; and Mars fathered Oenomaus by Sterope (though others call her Oenomaus's wife). Merope, on the other hand, wedded Sisyphus and bore him Glaucus, whom many claim to be Bellerophon's father. For the sake of her sisters,

then, she was placed among the stars, but, having wed with a mortal, given but a faint star. Others say it is Electra who cannot be seen; for whereas the Pleiades are said to lead as it were the choral dance of the stars, she, after Troy was taken and her descendents in the line of Dardanus ruined, withdrew to her place within the circle called Arctic, beside herself with grief; whence she is to be seen issuing at long intervals, so bereaved that, with her hair streaming in disarray, she is then called a comet.

Of old, astronomers considered the Pleiades (daughters of Pleione and Atlas, as we have said) quite apart from the Bull. As Pleione was taking her way through Boeotia once, with her daughters, Orion, who was of her convoy, offered violence to her. She took flight from him, and though Orion hunted her for seven years he could never find her. But Jove, taking pity on the daughters, laid a way before them up to the stars — afterward they were called by some astronomers the Bull's Tail — and so to this day we may see Orion pursuing them as they flee toward the setting sun. In our day they call these the Virgilian Stars, because they rise with the vernal equinox; and they are in some measure more highly esteemed than other stars because as a rising sign they mark summer's onset, while as they set they apprise us of winter coming on — a thing not granted to other signs.

GEMINI, the *Twins*. By the account of many astronomers these are Castor and Pollux, who they say most of all exemplify brotherly love: never contending who between them should rank first, nor undertaking any exploit without taking counsel together. For

their good example Juppiter is held to have set them aloft as such conspicuous stars; Neptune likewise rewarded them, for he gave them the horses they rode, and the power to deliver men from shipwreck.

Others have said they are Hercules and Apollo; some, indeed, call them Triptolemus (whose tale we have told) and Iasion—both beloved of Ceres, and so borne up among the stars. But those who make them Castor and Pollux add this beside: that Castor was slain in the town of Aphidnae, in the course of the war which the Lacedaemonians waged with the Athenians; while others have said it was when Lynceus and Idas attacked Sparta that he perished there. According to Homer, Pollux granted half his own life-span to his brother, and thus each of them shines but every other day.

It is said that CANCER, the *Crab*, was set in the stars by grace of Juno, because when Hercules stood his ground against the Lernaean Hydra, the crab had snatched up at him from the marsh and grasped his foot, whereupon Hercules, enraged, killed it. But Juno placed it among the stars as one of the twelve signs which are bounded overall by the sun's course.

As a part of its figure we may distinguish a pair of stars called the Asses, which Liber traced on the Crab's shell, using these two stars only. For when Juno settled madness upon him, Liber is said to have fled distracted through Thesprotia, making for the oracle of Jove at Dodona, from whom he hoped to learn how best to restore his wits to their former state. But when he came to a vast marsh, which he could nowise cross, so the tale goes, two asses came

across his path, one of whom he caught and so got carried over without wetting himself in the least. Thus he came to the temple of Dodonaean Jove, where, freed at once from his madness, he rendered his thanks to the asses by setting them among the stars. Some have even claimed that he endowed the ass that had carried him with a human voice, and that afterward the ass matched his qualities against Priapus, by whom he was defeated and killed: but Liber pitied his fate, and added his number to the stars. And that it might be known that he did so as a god, and not just because, like some timid man, he had fled from Juno, he set the Asses upon Cancer, who had been fixed in the stars for his service to her.

Yet another story is told of the Asses. According to Eratosthenes, when Juppiter declared war on the Giants, he called together all the gods to attack them. Father Liber, Vulcan, the Satyrs, and the Sileni came riding on asses. When they were come hard upon the enemy, the asses are said to have taken great fright and set up each and all so fearful a clamor that the ranks of the giants, who had never heard the like, broke into headlong flight from the din, and so were bested.

A tale alike to this is told of Triton's horn; for he, too, having discovered how to hollow out the conch-shell, carried it with him into battle with the giants, and there sent out such untoward sounds from the conch that the giants, fearing, in truth, that some monstrous beast had been brought in by their adversaries, gave themselves up to flight and so fell, vanquished, into their enemies' power.

LEO, the *Lion*, is said to have been set among the stars by Jove, who esteemed him foremost among all beasts. Some, indeed, add that it was because in Hercules's first trial he slew the lion unarmed: Pisandrus, among many, has written of this. Above the lion's image, next to the Maiden, are seven other stars arrayed in a triangle by the lion's tail, which Conon of Samos, the mathematician, and Callimachus too, call Berenice's Tresses. When Ptolemy took his sister Berenice, daughter of Ptolemy and Arsinoë, to wife, he purposed a few days afterward to set out to attack Asia; Berenice vowed that if Ptolemy should return the victor, she would shear off her hair, and placed a lock of hair, sanctified to this vow, in the temple of Venus Arsinoë Zephyrites. But the next day it could not be found. As the king took this news ill, Conon, the mathematician whom we mentioned at first, wishing to win his way in the king's favor, claimed that he saw the lock set among the stars, and pointed out seven stars in no particular array, which he made out to be the missing lock.

Some say, following Callimachus, that this Berenice raised horses, and was accustomed to send them to race at Olympia. Others add that Ptolemy, Berenice's father, once sought safety in flight, being terror-struck by his enemy's numbers; but his daughter, for whom it was quite habitual, sprang to her horse and, rallying the army's remaining troops, slew many of the enemy and drove the rest to flight. For this even Callimachus calls her greathearted. Eratosthenes, furthermore, recounts how she commanded that their dowries be restored to the maidens of Lesbos, which

their parents had left each of them, but which none had made good to them; and so she established among them the right to bring suit.

VIRGO, the *Maiden*. Hesiod calls her the daughter of Jove and Themis, but Aratus says she is held to be Astraeus's and Aurora's daughter, who lived in that time which among men was the Golden Age; and was in fact chief among them. For her good management and her fairmindedness she was called Justice.

In those days foreign nations were not given to warring among themselves, nor did any even sail in ships; instead, they followed lives of tilling the fields. But beginning with those born after their death, men grew ever less dutiful and more covetous, and the maid Justice accordingly had fewer and fewer dealings with them: till at last the state of things had come so far that a Brazen race of men was born. With them now, she could bear no more, and flew up into the stars.

But others have called her Fortuna, and others still Ceres; and all the more do they disagree among themselves, since her head is so faintly to be seen. Some, too, have called her Erigone, daughter of Icarus, of whom we have already spoken; others say she is the daughter borne by Chrysothemis to Apollo, an infant named Parthenos — and, of her, that, dying young, she was set among the stars by Apollo.

SCORPIUS, the *Scorpion*, may be taken as two signs on account of its spreading limbs; which in part make up what in our day is called the Balance. But taken as a whole the constellation is held to have won its standing thus. When Orion was out a-hunting,

priding himself on his peerless sportsmanship, he went so far as to boast one day to Diana and Latona that he was man enough to kill every creature that springs from the earth. Whereupon Earth, all wroth, sent the Scorpion to kill him, as the tale goes. But Jove, admiring the spirit of both, set the Scorpion among the stars, that the sight of him might be a warning to men, lest any man trust too much to any of his qualities. Diana, meanwhile, out of fondness for Orion, besought Jove to show her as much grace as he had done in yielding so freely to Earth: and so Orion's image was so placed as to be setting even as Scorpio rises.

SAGITTARIUS, the *Archer*. Many call him Centaur, though there are those who deny that he is so, arguing that no centaur ever made use of arrows. It is also asked why he should be pictured having the legs of a horse, while his tail is that of a Satyr. Some say, now, that he is Crotus by name, son of Eupheme, the Muses' nurse. According to Sositheus the tragedian, he made his home on Mount Helicon, where he was wont to take his delight in the company of the Muses, and now and then to take sport in the hunt. He secured himself wide fame by virtue of his aptness in both pursuits: for he became both surpassingly fleet in the forest, and most keen in the Muses' lore. For his zeal, then, the Muses besought Jove to trace his figure with some number of stars; and so Jove did. And as he wished to represent all of Crotus's accomplishments in one body, he gave him who had been such a horseman, a horse's legs; and added arrows, that by them both his keenness and his swiftness

might be seen. To his body he affixed a satyr's tail, because the Muses took no less delight in Crotus than Liber took in the satyrs. Before his feet, a few stars arrayed in a round, which some say is his wreath, where he has cast it aside in his sport.

The figure of CAPRICORNUS, the *Sea Goat*, is like Aegipan's, whom Juppiter, having been brought up with him, wished to set among the stars, like the goat who nursed them; of that we earlier spoke. When Juppiter made war on the Titans, this is he who first drove into the enemy's heart that terror which is called ΠΑΝΙΚΟΣ, Panic, as Eratosthenes confirms. As for why his hindquarters should be shaped like a fish's, that is because he hurled shellfish, instead of stones, at the enemy.

The Aegyptians' priests, and some poets, say that when many of the gods were assembled in Aegypt once, suddenly Typhon swooped down upon them, a raging monster and deadly enemy of the gods. In terror of him they transformed themselves into other shapes: Mercury made himself an ibis; Apollo, a crane, the bird of Thrace; Diana, a cat. It is thought that for their sakes the Aegyptians do not suffer these creatures to be harmed, since they are accounted images of the gods. On that occasion they say that Pan threw himself into the river and turned his hindquarters into a fish's, while the rest of him he made a he-goat, and in this wise made his escape from Typhon. Admiring his ingenuity, Jove affixed that image of him among the stars.

AQUARIUS, the *Water Carrier*. Many have said that this is Ganymede, whom Juppiter snatched away

from his parents for the sake of his bodily beauty, and made him the gods' attendant; so he is shown pouring water from a basin. Hegesianax, however, calls him Deucalion, in whose reign such mighty torrents poured down from the skies that there came the great Flood that men tell of. Eubulus, on the other hand, asserts that this is Cecrops, reminding us of the hoariness of our race, and showing that, before wine was bestowed upon men, they used water in divine sacrifices; for Cecrops reigned before wine was ever known.

PISCES, the *Fishes*. Diogenes Erythraeus tells how Venus came once, with her son Cupid, to the Syrian river Euphrates, and there Typhon, whom we have told of, suddenly appeared. Venus saved them both from this peril by throwing herself and her son with her into the river, and changing them both into the shape of fishes. So it is that the Syrians who live in those reaches forsook eating fish, fearing to catch them, lest in so doing they should seem either to assail the gods' defenses, or indeed to entrap them.

Eratosthenes says, moreover, that from this fish their race sprang; of that we shall have more to say later.

Of CETUS, the *Whale*, it is said that he was sent by Neptune to devour Andromeda, whose tale we have already told. But being slain by Perseus, he was set among the stars, both on account of his own enormous size, and Perseus's valor.

ERIDANUS. Some have said this to be the Nile, but many that it is none other than Ocean. They who would have it be the Nile argue from the great length and supreme usefulness of that river; and further, be-

cause below it lies that star, shining more brightly than the rest, which is given the name Canopus — an island washed by the river Nile.

LEPUS, the *Hare*, is said to fly the hound of the pursuing Orion; for when, befittingly, they portrayed Orion as a huntsman, they wished also to show some sign of his quarry; and so they pictured the fleeing hare before his feet. Some have said it was Mercury who put her where she stands. To her it is given, beyond all other four-footed kind, that even as she is giving birth to one brood, she carries another in her belly. They who differ from this account say that so noble and so mighty a hunter (we have told somewhat of him in our account of the sign Scorpio) should hardly be shown hunting a hare. Callimachus is in part to be faulted, for in singing the praises of Diana he speaks of her delighting in the blood of hares, and hunting them. Such as these, in any case, make Orion out fighting the Bull.

They have, moreover, handed down this tale of the hare. There were formerly no hares in the isle of Leros; not till a certain young countryman there, who heartily fancied the creatures, brought in a pregnant doe from off the island, and most carefully attended her birthing. And when she had borne her brood, many of his fellow countrymen took up his zeal, till, trading for them partly in purchase and partly in gift, everyone fell to raising hares. In no great while such a horde of them had been reared that the whole island was pronounced overridden by them; and when they got nothing to eat from their breeders, they broke into the fields of young shoots and devoured them all.

Faced with calamity by these events, the islanders, growing oppressed with hunger, took common counsel, by which all the citizenry are said at length and with great pains to have driven the creatures from their island. Afterward they set the figure of the hare in the stars, to remind men that nothing in life is so very desirable but that, after all, they may come to take more grief than joy of it.

ORION. Hesiod calls him Neptune's son, born of Euryalis, daughter of Minos. It was granted him, accordingly, to run over the waves as if they were dry land, in much the same way that Iphiclus is said to have been gifted to run across the standing ears of grain without so much as bruising them.

Now Aristomachus tells of one Hyrieus, a Theban (though Pindar places him in the isle of Chios), who, in any case, when he received Jove and Mercury as his guests, besought them that a child might be born to him. And so that he might the sooner win the boon he asked, he sacrificed an ox and laid it before them at the banquet. When he had brought it in, Jove and Mercury directed that the hide be drawn off the ox, and that they cause urine to be poured into it; then they bade it be buried in the earth. From it in time a boy was born, whom Hyrieus named Urion, after his engendering; but for his grace and affableness he came to be called Orion.

He is said to have come to Chios from Thebes, and there, his desire inflamed by wine, to have seduced Merope, Oenopion's daughter. For his misdeed it is said that Oenopion blinded and drove him from the island, to Vulcan on Lemnos, from whom he received

a man named Cedalion for his guide. Carrying Cedalion on his shoulders, the story goes, he came to the Sun-god and was no sooner healed by him than he turned back toward Chios, to avenge himself. Oenopion, however, was kept safely hid underground by his subjects; and Orion, having at last despaired of finding him, went on to the isle of Crete, where he took up with Diana in her hunts. To her he vaunted himself as we have already recounted, and so passed into the stars. But some say that Orion lived with Oenopion in rather too intemperate closeness, and that, wishing to prove to the latter his huntsmanly skill, he swaggered before Diana herself, and so, as we have told, died for it.

Others, among them Callimachu, say it was when he offered violence to Diana that she stopped him short with her arrows, and arrayed him in stars as one like herself, a zealot of the hunt.

Istrus, however, says that Orion so pleased Diana that she was all but wed with him; but Apollo bore it ill, though his continued scolding bore no fruit. So one day when Orion was out swimming, his head only above water, and that far from shore, Apollo wagered with Diana that she could not send her shafts so far as to hit that black spot out at sea there: and she, desiring ever to be known the mistress of her art, without peer, let fly her shaft and pierced Orion's skull. When the waves washed him, slain, ashore, then she mightily bewailed her hit, and mourning his death with many a tear, raised him to stand among the stars. But of what she did after his death we shall tell in her own tale.

CANIS, the *Dog*, is said to have been set watch over Europa by Jove, and so to have come to Minos.

When Procris, then, Cephalus's wife, healed the ailing Minos, she received this dog as reward for her kindness: for she was most fond of hunting, and the dog was well bestowed upon her, since no beast could outrun it. After her death the dog passed into the hands of her husband Cephalus, who led it with him into Thebes. There a fox hunted, who by common report could give any dog the slip: and so when the two were come face-to-face, Juppiter, unsure what to do, as Istrus says, turned the both of them to stone.

Some have said he is Orion's dog, and was set among the stars alongside him because he was so devoted a hunter. Still others have called him Icarus's dog, of whom we have spoken. All these many accounts have their proponents.

In any case, the Dog has one star in his tongue which itself is called the Dog Star; and in his head another which Isis is held to have set there under her own name, and to have called it Sirius, *the Scorcher*, because it burns so dazzlingly that it seems to out-shine all the others; and so that men might recognize it the better, she called it Sirius.

PROCYON, the *Lesser Dog*, appears, in rising, before the Greater Dog (and by some is held to be Orion's dog instead); because of which it is called "the Forerunning-Dog." But it figures in all the tales told of the Greater Dog.

ARGO. Some have said that this ship was called Argo, in Greek, on account of its swiftness; others, because it was Argus who wrought her. But many

agree that she was the first of her kind on the seas, and because of this chiefly is figured in the stars. Pindar says this ship was built in a town of Magnesia named Demetrius; Callimachus, that it was in the same district as the temple of Actian Apollo, which the Argonauts are held to have founded on embarking thence. The place is called Pagasae because the ship Argo, so they say, was first joined together there: ΠΑΓΑΣΑΙ in Greek meaning, "made fast." Homer locates this same spot on Thessalian ground; while Aeschylus, among others, says that Minerva joined speaking timbers to its frame. But not all of its shape appears among the stars: only that part of it taken from stem to mast; signifying that men shipwrecked at sea need not abandon all hope.

The CENTAUR is said to be Saturn's and Philyra's son, Chiron by name, who surpassed not only the other centaurs, but men, too, in justness; and is held to have reared both Aesculapius and Achilles. By virtue of his piety and diligence, therefore, he was numbered among the stars. When Hercules once came to call on him, even as he was sitting down beside Chiron he let his quiver fall to the ground, as they tell, so that one of the arrows dropped headfirst onto Chiron's foot, and killed him. But others tell how the centaur marvelled that with such slight arrows Hercules could slay such massive creatures as the centaurs were; then, when he tried to draw the bow himself, the arrow, slipping from his grasp, pierced his foot. Juppiter pitied him his accident, and set him among the stars, along with a victim, which he appears to hold above the Altar in sacrifice. Still others

have said he is the centaur Pholus, who stood foremost among all the rest in his power of augury, and so by Jove's will was portrayed approaching the altar with a victim.

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ARA, the *Altar*. Hereupon it is held that the gods first performed their rites and swore oaths of alliance, when they took up war against the Titans. The Cyclopes wrought it; and from this instance men are said to have taken the custom, whenever they plan an undertaking, of making sacrifice before they take action.

Upon Hydra, CORVUS, the *Raven*, is deemed to perch, and the *Wine-Mixing Urn*, Crater, to be poised; the reason for which has come down thus in memory: the raven, being a charge of Apollo's, was sent once to a spring, to fetch some pure water to the god's sacrifice; but on his way he spied several trees full of unripe figs. Alighting in one of them, he sat to wait out their ripening. And when after some days the figs grew ripe, and the raven ate his fill of them, Apollo at long last saw him hastening back, the Crater brimming as he flew. For having caused him so long delay, Apollo, who had been obliged by the raven's delay to find other water, brought this misery upon the bird: that as long as the figs are ripening, the raven, on account of his rasping cough, cannot drink. And as Apollo wished to suggest the raven's thirst, he placed the Crater beside him amid the stars, with Hydra beneath him, the longer to delay the thirsting creature. So he seems to hammer at the tip of Hydra's tail with his beak, that the serpent might let him hop across to the Crater.

But Istrus, among others, has said that the raven is Coronis, daughter of Phlegyas, who bore Aesculapius to Apollo. Later, however, Ischys, son of Elatus, lay with her; which the raven no sooner spied than he bore the news to Apollo. Apollo thereupon blackened him all over for his disagreeable tidings, who before had glistened all over white; then he pierced Ischys with his shafts.

Of the Crater, moreover, Phylarchus writes this account. In the Chersonnese, roundabout Troy, there where many have said is the site of Protesilaus's tomb, is a city called Elaeusa. When one Demophon was king there, a sudden plague swept through the city, taking fearful toll of its citizens. Demophon in his anguish sent to the oracle of Apollo, begging some remedy for this devastation. Being instructed in response to sacrifice every year one maiden of noble family to the household gods of the city, he took to choosing by lot, from among the daughters of every family but his own, who should be killed; until a certain man of highest station among his nobles had suffered enough of Demophon's scheme. He stood and refused to let his daughter take part in the lottery, unless the king's daughter cast in her lot withal: but the king was so wroth at his daring that he took and slew the man's daughter with no lottery whatever. The maiden's father, Mastusius by name, pretended for awhile that he did not, for his country's sake, bear this deed hard — for in any case his daughter might have perished in due course by the lottery; and so, little by little, he drew the king into forgetfulness. And when at length the maiden's father had proved

himself among the king's closest friends, announcing that he would hold a solemn sacrifice, he invited Demophon and his daughters to join in its celebration. The latter, suspecting nothing that lay in store, sent his daughters on ahead; being occupied himself with affairs of state, he intended to follow shortly. P
O Matusius's wish was thus realized: killing the king's
E daughters, he mixed their blood in the wine-crater,
T and bade the king's cup be filled from it when he arrived. When Demophon asked for his daughters, and
I learned what had been done with them, he com-
C manded Mastusius and the crater both cast into the
O sea — which, where he was cast, is called the Mastu-
N sian Sea in his memory, while the harbor there is called the Crater. Even so the ancient astronomers traced its figure in the stars, that men might remember that no one profits lightly by his evildoing, nor is enmity wont to be forgotten.

Some, among them Eratosthenes, say that this is the crater that Icarus used, when he introduced wine among men; still others, that it is the winejar into which Otus and Ephialtes threw Mars.

PISCIS, the *Fish* who is called Notius, of the South, appears to catch in his mouth the water streaming from Aquarius. It is held that once he succored Isis when she lay ill; for which kindness she set both the fish and its young (whose tale we have already told) among the stars. So it is that among the Syrians many do not eat fish, but rather worship gilded images of them as household gods. Ctesias, too, records this.

It is left us only to speak of the five stars which many have called the Wanderers, or, among the

Greeks, Planets. One of them is Jove's star, named Phaenon; of whom Heraclides Ponticus relates that, when Prometheus was shaping mankind, him he made excelling all others in bodily beauty; and so he schemed to keep him back, rather than render him up to Jove with the rest. But Cupid bore word of it to Jove, who thereupon sent Mercury to persuade Phaenon to come to him and be made immortal: thus he came to his place among the stars.

The second star is called Sol's, though others have called it Saturn's. Eratosthenes calls it Phaëthon, after the son of Sol: of whom many have written, how he was carried off willy-nilly in his father's chariot, and set the earth afire. Jove accordingly struck him down with his thunderbolt, and he fell into the river Eridanus, whence Sol raised him up again into the stars.

The star of Mars comes third, which some have called Hercules's. According to Eratosthenes, it follows Venus's star because when Vulcan led away Venus to wife, his watchfulness gave Mars no opportunity with her; indeed Mars won nothing more from Venus than that his star should follow hers. Wherefore, since she so furiously fired him with love for her, she called his star Pyroeis, in token of that.

Fourth is Venus's star (though some have called it Juno's), which is named Lucifer; in many tales it goes by its traditional name, Hesperus, as well. It appears, in any case, greatest of all the stars. Some have said him to be the son of Aurora and Cepheus, surpassing many in beauty,—so much so that he is accounted to have been a match for Venus, whence, according to

Eratosthenes, he comes to be known as Venus's star. And whenas he appears both at sunrise and sunset, as we have mentioned, he is properly given both his names, Lucifer and Hesperus.

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The fifth star is Mercury's, Stilbon by name: it is both small and bright. It is held to have been given Mercury for having first ordained the months, and observed the heavenly courses. Euhemerus, however, says that Venus first ordained the constellations, and pointed them out to Mercury.

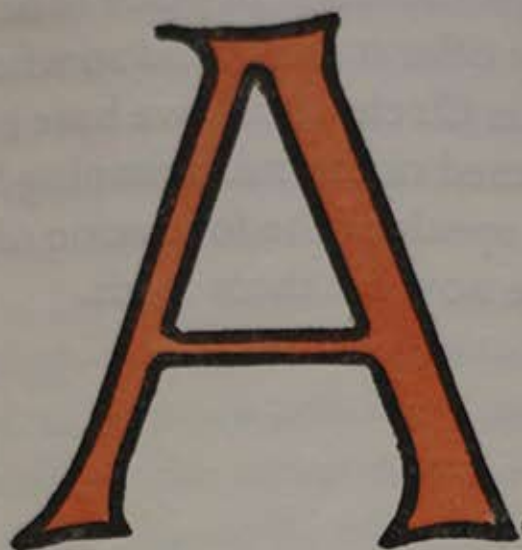
There is, beside, a Circle to be observed in the heavens, all glistening white, so that some have called it Milky. Eratosthenes tells how Juno, unsuspecting, gave her milk to the infant Mercury; but, when she learned that he was really Maia's son, thrust him away; and the milk she spent thus shines splendid now among the stars. Others have told how Hercules



was laid beside Juno as she slept; who, on awaking, did as we have said. Still others tell how Hercules's appetite was so lusty that he sucked in more milk than his mouth could hold; which, spilling from his lips, formed this Circle. And others say that when Ops brought Saturn the stone in place of her newborn, he bade her offer it milk; and so when she put it to her breast, this Circle which we have been describing was formed of the milk running forth.

But let us now speak of the formation of all these figures, as we have now set them forth.

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ACCORDINGLY we shall take up our discourse from the Boreal pole, round which both the Bears (ARCTUS MAJOR and MINOR) are borne supporting each other, surrounded by the Arctic Circle, and so positioned that they appear back-to-back, each touching the other's head, with the upper one's head stretching toward the lower one's tail; and the Greater of them has his paws planted on the very rim of the Circle. He has, withal, seven stars in his head, all of them faint, and two at each ear; one bright star in his shoulder; in his hindmost paw two; seated high between his shoulder-blades one; in his first hind leg one; two in his fore-paw; and three in the tail itself. So that the stars of this constellation, all told, are twenty-one.

The Lesser Bear, on the other hand, has single, clearly shining stars at each of his footholds, and three in his tail — seven in all. But among the first stars of

his tail the lowest one is that we call the Polestar, as Eratosthenes attests: round whose place the World itself is held to turn; and the remaining two are called XOPETTAI, the Chorus-Dancers, because they whirl so round the pole.

DRACO, the Dragon, is situated between the two Bears, and appears so to encompass the Lesser Bear by the curve of his body that the bear's paws seem all but to rest upon him: while his tail is flexed up to brush against the Greater Bear's head—even as, with his own head drawn round, he touches the Arctic Circle, twisting his whole body as it were in a braid. And if one pay close heed, one will see where Draco's head lies alongside the tailquarters of the Greater Bear. Single stars mark either side of his snout, and

Draco



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his eyes; one at his chin; and ten arrayed up and down the rest of his body, making in all fifteen.

ARCTOPHYLAX, the Bear Keeper — who is also the oxherd, Boötes — stands with his left hand encompassed by the Arctic Circle, so that it alone appears neither to set nor rise; but he himself stretches from the Arctic Circle to the Summer, stooped over in stature, with his right foot resting on the Summer Tropic.

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Boötes

The circle which runs through both poles and touches upon Aries and the Claws of Scorpio, also parts his shoulders and breast from the rest of his body. When we mark him setting with Cancer and Leo as Taurus and Gemini are rising, then indeed he seems to set

late; whenas he descends earthward he stands most upright on his feet; but we mark him rising prone, and more swiftly then than Scorpio's Claws. He has, in any case, four stars in his right hand, which are said never to set; in his head one star, and a single one at each shoulder, and in each breast, too (only that on the right is the brighter, and has another faint star below it); and one bright star at his right elbow, while one brighter than all the rest shines from his belt: this is the star we call Arcturus; and, with the lone stars in either foot, the total is fourteen.

The Crown, CORONA, Arctophylax seems nearly to touch with his left shoulder; while Engonasin, the



Corona

Kneeler, as we call him, links it with the heel of his right foot. We mark it setting as Cancer and Leo rise, and rising again along with Scorpio. In it nine stars are disposed in a round, but three of them shine brighter than the rest.

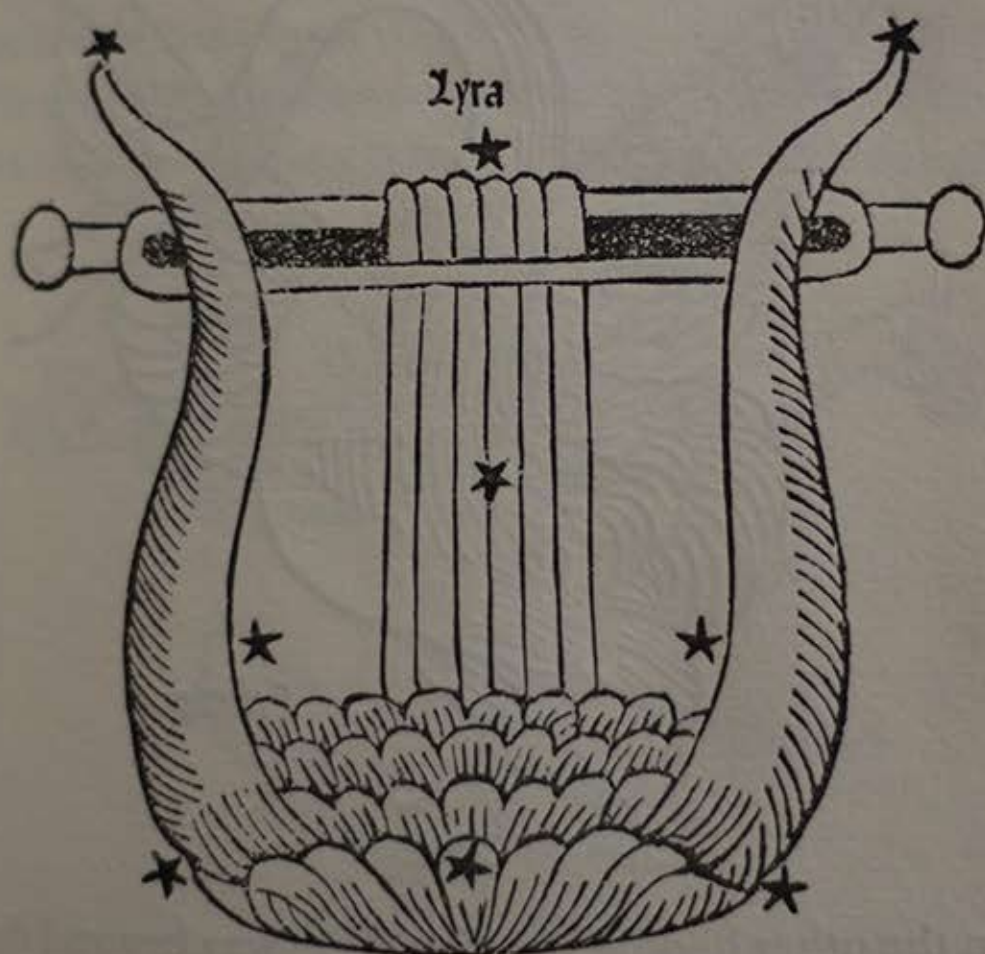
ENGONASIN, the Kneeler, or Hercules, is set between the Arctic and Summer Circles, marking the former, as we have said, with both feet and his right knee; but his right foot is poised tip-toe on the circle, while his left presses hard upon it, as if to crush the head of Draco. Meantime he seems to bear the Summer Tropic on his shoulders, reaching out to steady it with his right hand; while from above his left knee he reaches his left hand out an equal distance along the Summer Tropic, above that knee. His head setting before the rest of his body, he sinks earthward, and as he sets entirely seems to hang by his feet from the Arctic Circle; while he rises again with his feet before his other limbs.



Hercules

In his head is one star, and one in his right forearm; at either shoulder a single star shines brightly; in his left hand one, and another at his right elbow; single stars in either flank, but that in the left the brighter; two in his right thigh; one each in that knee and in its hollow; two in the shin; one in the foot, which we may call bright; and four in his right hand, which some have said mark the lion's pelt: in all there are nineteen.

LYRA, the Lyre, sits opposite the space between the knee and the left hand of him we call Engonasin: its tortoise-shell opens onto the Arctic Circle, while its



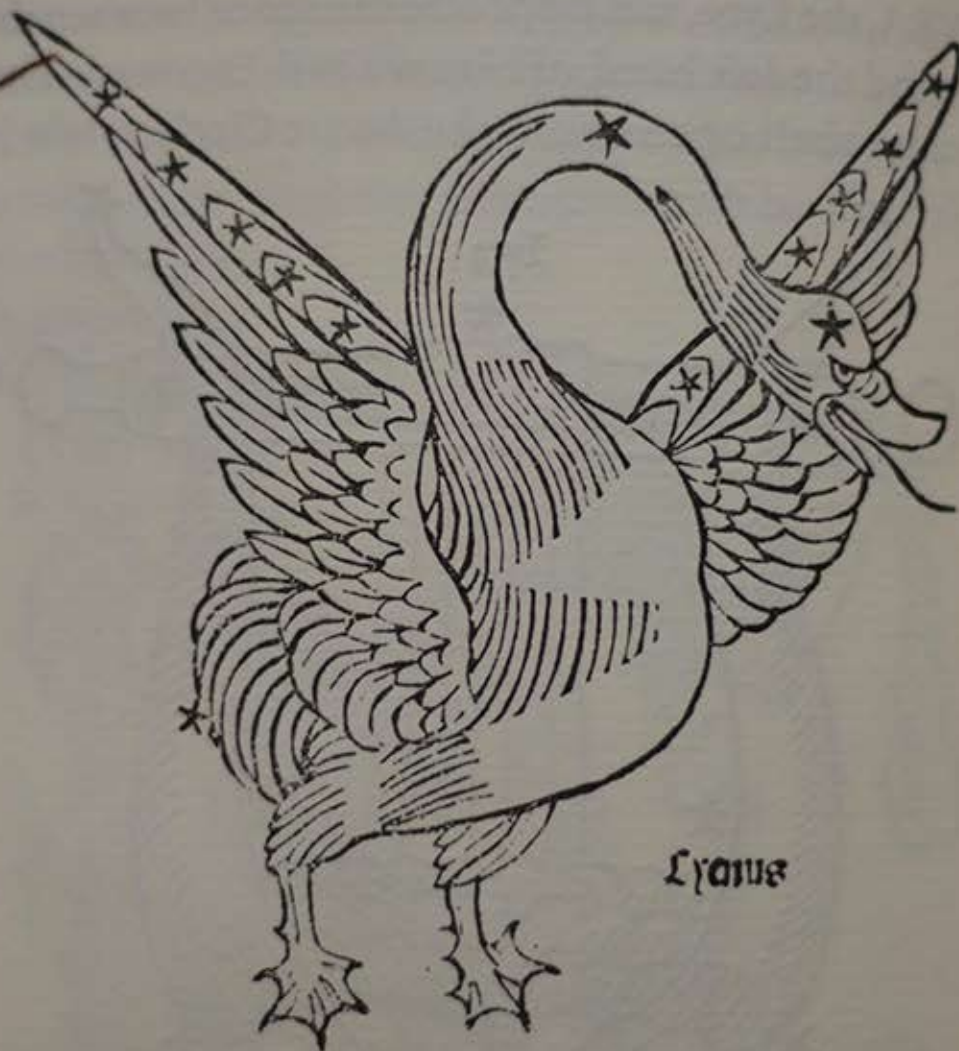
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furthest tip seems to stretch toward the pole Notus.

We mark it setting as Virgo rises, and rising with Sagittarius again. In the sides of the shell themselves are lone stars, as also in their furthest tips, which

branch as two arms from the shell; in their midst (which Eratosthenes pictured as shoulders), single stars again; and one in each shoulderblade, as it were, of the shell; and at the base of the whole Lyre (so its low point appears to be), one: thus there are nine all told.

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OLOR, the Swan, one of whose wings grazes that circle we call the Arctic, touches thereby the tip of his left foot, whom we call the Kneeler. His left wing,



on the other hand, extends a little way beyond the Summer Tropic, almost sweeping the hoofs of Pegasus; and while the Summer Tropic parts his bill from the rest of his body, the tip of his tail is caught up in the head of Cepheus. Setting as Virgo and the Claws

of Scorpio rise, he drops head first towards earth, and rises again with Capricorn. In his head he bears one brightly shining star; in his neck another equally gleaming; five in the pinions of either wing, and one upon his tail: making in all thirteen stars.

CEPHEUS, whom we find by the back of the Lesser Bear, lies from his feet to his breast within the Arctic Circle, so that we see none of him set but his shoulders and head: nor does he stand far off from Draco's coils; indeed, he seems to make up the first length of them with his head. He is figured, moreover, with both his hands outstretched, distant from the paws of the Lesser Bear by as wide a space as there is between his own feet. His head we mark setting when Scorpio has risen, and rising with Sagittarius. As for his stars,



Cepheus

there are two in his head, one in his right hand, and one, albeit faint, at his elbow; single stars in his left hand and shoulder, and in his right shoulder; in his belt, which girds him at his middle, three bright stars are to be seen; in his right flank one, faint; two in his right knee, and a single one in each of his feet, with four above them: the sum of his stars being nineteen.

CASSIOPEIA sits enthroned in a pod of sorts, her seat and her feet themselves planted within the round of the Arctic Circle, so called: the figure of her body, however, extends to the Summer Tropic, which she



touches with her head and right hand. The band we

have called milky divides her nearly in half, where she holds her place alongside the constellation of Cepheus. We mark her setting head first while Scorpio rises, as if cast backward in her seat, and with Sagittarius we see her rise. One star lies in her head; one in each shoulder; one bright star at her right pap; a great star in her loins; two in her left thigh; one in the knee, and also in the toes of her right foot; in the square formed by her seat, a single star shining more brightly than all the others at each corner: so that in all her stars number thirteen.

ANDROMEDA, next Cassiopeia, may be seen set



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off at a little distance above the head of Perseus; with

her outspread hands bound fast, as we are told in the old tales. Her head abuts the belly of the horse Pegasus; indeed one star is said to mark both Pegasus's navel and Andromeda's head. The Summer Tropic parts her midway through her breast and her left hand. She sets with the second of the two Fishes, which we have earlier mentioned lies below Andromeda's forearm; so as Libra and Scorpio are rising she descends, her head before the rest of her, earthward. She rises again with Pisces and Aries.

In her head is one brightly shining star, and one at each shoulder; in her right elbow and in the same hand, and in her left elbow and forearm, one each, and another in that hand; three in her girdle and four above it; one in each knee, and a pair in both her feet: so that in all there are twenty stars.

PERSEUS is parted by the Summer Tropic, his left leg and shoulder from the rest of his body; even as with his right hand he touches the Arctic Circle. He seems, as he runs, to come down hard with his right foot on the head of Auriga. For himself, he sets upon Sagittarius's and Capricorn's rising, turning headlong as he sinks, and with Aries and Taurus rises again upright. At either shoulder he bears one star, and one shining brightly in his right hand, in which he is said to grasp the sickle with whose blade he slew the Gorgon.

In his left hand there is another star, where we imagine him to hold the Gorgon's head; next, in his belly, one star, and another in his loins; one each at his right thigh, knee, and shin, and one but faint in his foot; and in his left thigh one, with another at the

knee, and two in the shin; in his left hand four stars are said to make up the Gorgon's head; in all there are seventeen stars: but his head and the sickle both appear starless.

When Aratus speaks of him figuring all KEKONIS-MENON among the stars, many have taken him to mean that Perseus is 'dust-laden.' But it is scarcely suitable to think there could be anything dusty among the stars; or if there were, surely Orion were more worthy to be distinguished so: first, because he was devoted to the chase, and forever afield; and the more so because even now among the stars he appears



a-hunting. Perseus, however, who flew whithersoever he went, could hardly have gathered much dust

about him; wherefore it must be that Aratus, wishing to suggest, veiledly, Perseus's fleetness, followed Aetolian custom in calling him KEKONISME^NON, 'dust-laden'; for the Aetolians, when they wish to suggest someone making haste, say KEKONIS^ΘAI, 'he raises a dustcloud,' and this is what Aratus meant us to imagine: not that he who flew wherever he went was dust-laden, as many have wrongly understood him to say.

HENIOCHUS, or AURIGA, the Charioteer, now, is bounded at the knees by the Summer Tropic, and by that which we have before called the milky orb is further divided from his left shoulder to his belt: his right foot shares one star with the left horn of Taurus, and he is figured holding reins in his hand. On his



left shoulder a she-goat, and in his other hand two kids by two stars are said to be shapen. He lies alto-

gether below Perseus's feet, his head facing the Greater Bear. With Sagittarius's and Capricorn's rising we mark him setting; he rises, again, while Ophiucus and Engonasin are setting. He has, beyond this, one star in his head and one in each shoulder—but that in the left, which we call the she-goat, is the brighter; at each elbow one; and in his hand the two we call the kids, whose shapes appear when the stars are nearly setting: in all his stars number seven.

OPHIUCUS, the Snakehandler, whom we mark craning his head as if he lay prone, is figured holding a snake in his hands: the Summer Tropic parts his shoulders from the rest of his body, and the Aequinoctial Circle bounds him, too, at the line of his

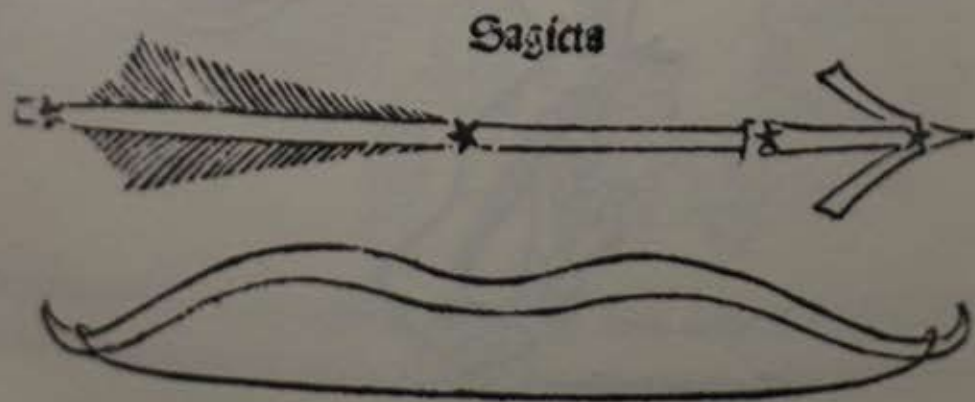


Serpentarius

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knees; while with his left foot pressing upon the eyes
of Scorpio, he rests on Scorpio's shell with his right.
The snake he grasps, moreover, nearly touches the
Crown with the tip of its mouth, and girds Ophiucus
himself round his middle; it is shorter toward its tail,
next where the left hand of the constellation proper is
poised, than in the forelength of its body. Yet with
the tip of its tail, thus figured, it meets the Eagle's tail
at the Aequinoctial Circle. Ophiucus setting sinks to
earth when Gemini, Cancer, and Leo have risen, and,
rising again, appears with Scorpio and Sagittarius.
In his head there is one star, and a single star in each
shoulder; three in his left hand, four in his right; two
in his loins; single stars at his knees, and in his right
shin one; a single star in each foot, but the righthand
one brighter; and so in all his stars number seventeen.

The snake has two stars in the crown of its head,
and below it four, all crowded together; where the
left hand of Ophiucus himself holds it, two—but that
which lies near his body is the brighter; along the
snake's spine to where it meets Ophiucus's body, five;
and in the first curve, toward its tail, four, with six
again in the second, curving towards its head: so that
in all there are twenty-three stars.

SAGITTA, the Arrow, is set between the two cir-



cles — the Summer and the Aequinoctial — above the constellation of the Eagle, divided by that circle which extends to Cancer and Capricorn from below either pole. Its barb points toward Pegasus's hoof; the other end of it extends towards Ophiucus's shoulders. It sets when Virgo has risen, and rises again with Scorpio. In it are four stars all told, of which one lies at the base of the shaft, another in the middle of it, and the two remaining where the iron would be fastened, marking its flared head.

AQUILA, the Eagle, appears to sweep her right wing not far beyond the Aequinoctial Circle, and her left not far from the head of Ophiucus. That circle which we have described above extending from Can-



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cer to Capricorn, parts her beak, now, from the rest of her body; while she crosses midway the milky orb, as we laid it out earlier. She sets when Leo has risen, and rises again with Capricorn; bearing one star in her tail; one in each wing; and in her tail one: so there are four in all.

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DELPHINUS, the Dolphin, who figures not far from the constellation of the Eagle, touches the round of the Aequinoctial Circle with the lattermost of his upcurved tail, nearly linked with the muzzle of Pegasus by his head. He rises with the hindquarters of Sagittarius, and sets when Virgo has risen to the line of her head. In his head are two stars; and along the nape of his neck, two; in the featherlike fins by his belly three; one in his shoulders, and two in his tail: making in all ten stars.



Delphin

EQUUS, or PEGASUS, the Horse, faces the Arctic Circle, appearing to touch with his hoofs on the Summer Tropic, and with the tip of his muzzle on the Dolphin's head: while his mane grazes the right hand of Aquarius, and he himself is flanked on either hand by the Fishes, whom we shall shortly lay out among

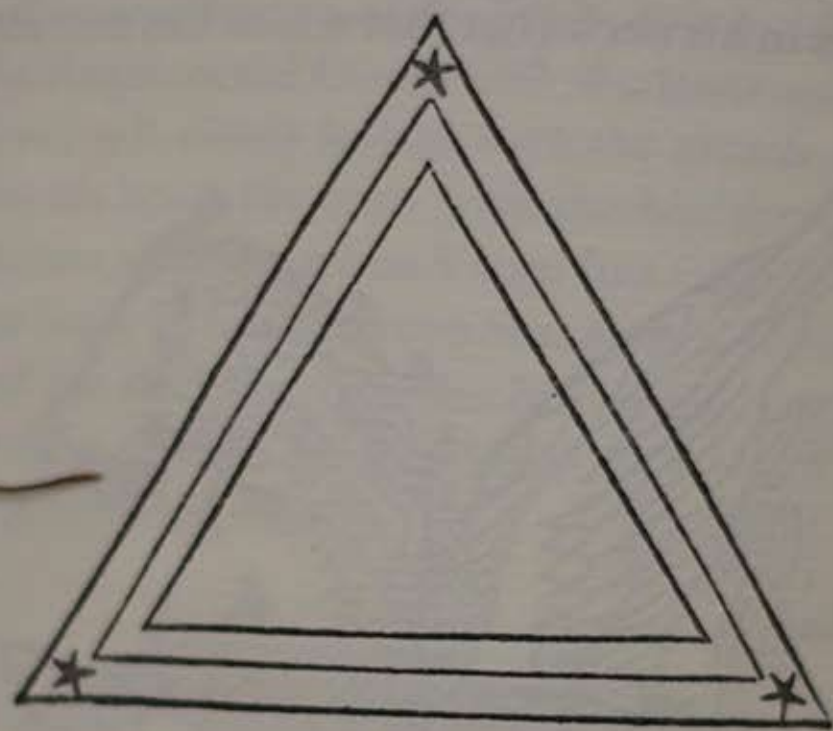
the twelve signs. The figure of his body appears in the stars only as far as the navel; he sets with the first of the two Fishes (that which rides above his back), and rises when Aquarius is fully risen, along with the same Fish with which he and Aquarius's right hand set. In his muzzle are two faint stars; one in his head and one in his jaw; a single star in each ear, and four faint ones in his neck (but that which lies nearest his



Equus

head shines brightest); one bright star in his shoulder, and one each in his breast and between his shoulderblades; one hindmost at his navel, which is also known as Andromeda's head; a single star in both knees, and in their hollows; so that in all there are eighteen stars.

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Now DELTOTON holds the shape of a Triangle, with two sides of equal measure and one but little shorter than these. It stands between the Summer and Aequinoctial Circles, above Aries's head and not far from Andromeda's right shin and Perseus's left hand: setting as Aries fully sets, and rising with the first half of Aries again. Each of its angles is marked by a star.



Triangulus

Now let us straightway turn to the figures of the twelve signs, of which the first is Aries.

ARIES, the Ram, keeps within the Aequinoctial Circle; with his head turned toward the rising sun, he sets forefeet first and, as he rises, keeps his head below the Triangle, as we just now mentioned; his feet, meanwhile, nearly touch upon the Whale's head. In his head is one star, but three in his horns, and three in his neck; in the more forward of his forefeet one; betwixt his shoulderblades four; one in his tail, and one below his belly; three in his loins; and one in his

hindmost hoof: numbering in all eighteen.



TAURUS, the Bull, holds his place midway in the rising course of the signs, such that he appears to plant his knees upon the earth as he starts up, regarding it fixedly; the Aequinoctial Circle parts his knees from the rest of his body, while by his left horn, as we noted above, he is linked with the right foot of him we call Auriga. Between the line which bounds his body and the tail of Aries lie seven stars which we in our day call the Stars of Vergil, but the Greeks knew them as the Pleiades.

Taurus sets and rises as if shying backwards. In his horns, now, he bears single stars, that in the left being brighter; single stars, too, in both eyes, and one in the midst of his forehead; single stars again at the points whence his horns spring: and these seven stars are also known as the Hyades — albeit some have de-

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nied that the two last are among these stars, which would make the Hyades five in all. There is, in any case, one star in his forward (that is, his left) knee, and one above the hoof; one in his right knee, and three between his shoulders, the hindmost of which is brighter than the others; and one in his breast: which amounts in all, apart from the Vergilian Stars, to fourteen.



Taurus

GEMINI, the Twins, appear to the right of Auriga and above Orion: Orion being thus lodged between Taurus and Gemini. Their heads are parted from the rest of them by that circle which we have said marks the summertime; holding each other as in embrace, they set upright on their feet, but rise prone. He that lies next Cancer has one bright star in his head, and a single bright star, too, at each shoulder; one star at

his right elbow, and in both knees, and one to the
 fore of each foot; the other twin has one star in his
 head, one at his left shoulder and another at his right;
 single stars in both breasts, and one each in his right
 and left knee; with single stars in either foot, and one
 below the left foot which is called Propus, the Fore-
 foot: in all eighteen.

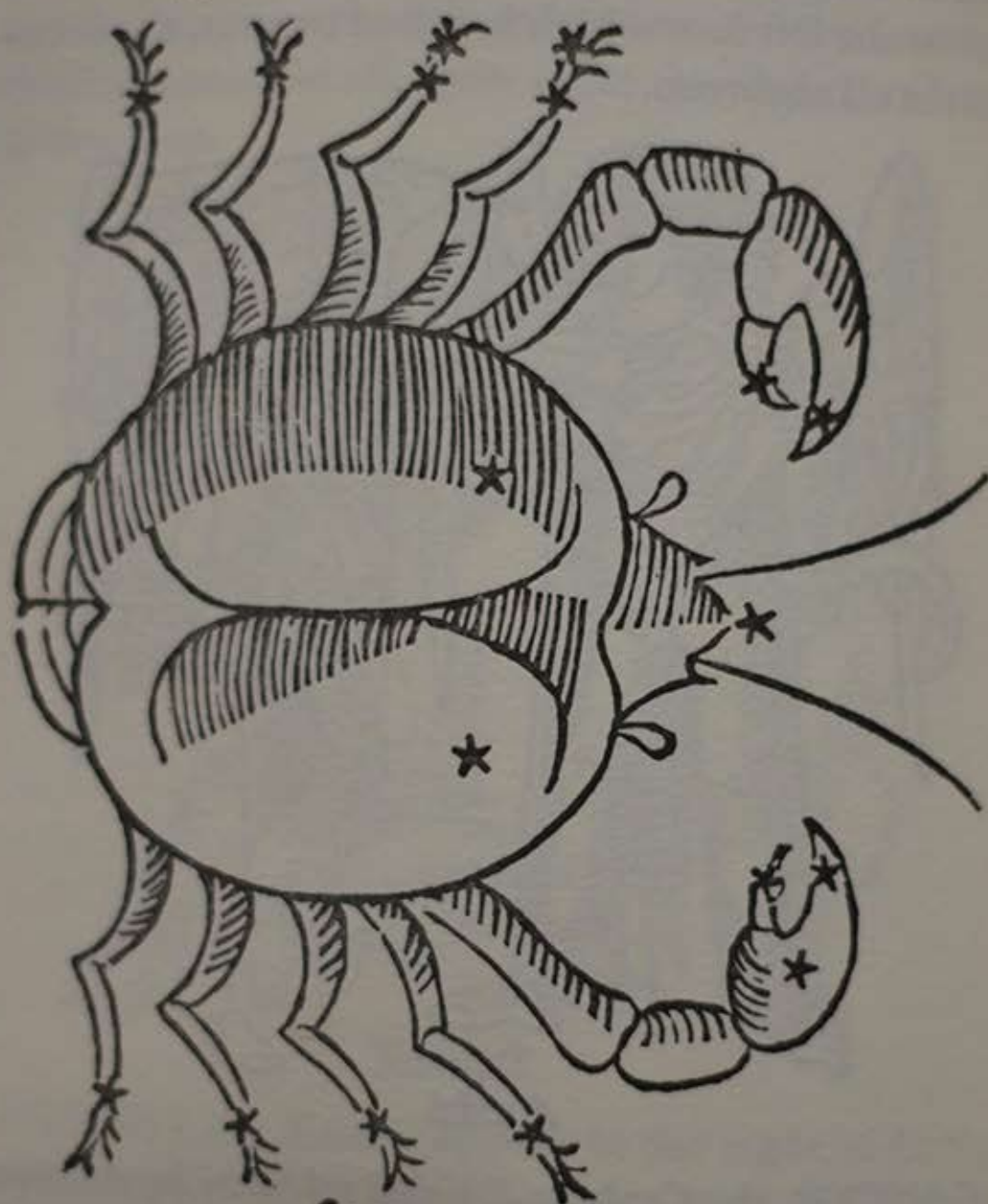


Gemini

CANCER, the Crab, is divided midway by the Sum-
 mer Tropic as he faces toward the Lion and the rising
 sun, from his place a little above Hydra's head. He
 sets and rises from his hindquarters up. In his shell
 proper are two stars which are called the Asses (we
 have mentioned them before); in his right legs single
 stars and dim; in his left foreleg two stars, in the sec-

ond, two, albeit faint; one in the third; and another, faint, in the fourth; one at his mouth; and in what we call his right Claw three, none of them very great; with two alike in the left Claw; so that in all his stars number eighteen.

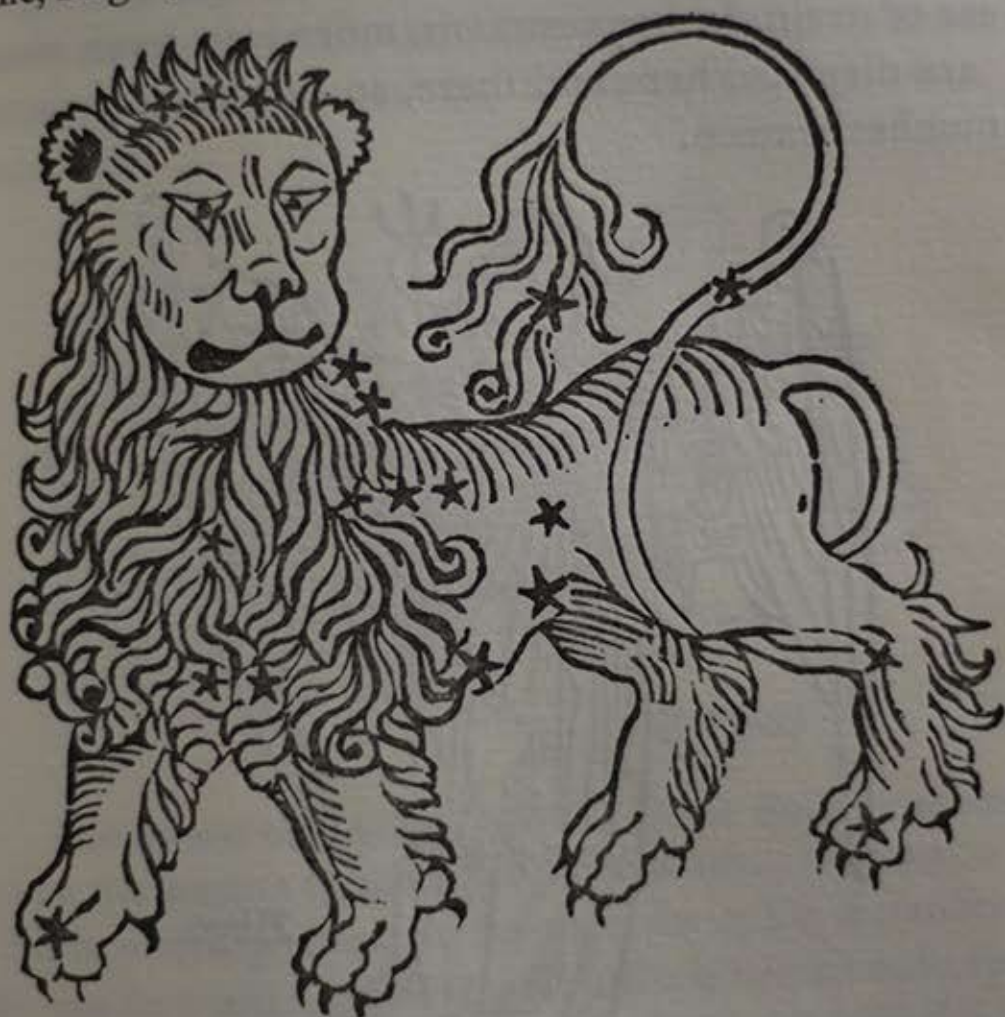
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Cancer

LEO, the Lion, faces the rising sun from his station above Hydra's body, near where Cancer stretches up as far as his mid-parts; and himself is parted midway by the Summer Tropic, so that his forepaws are planted below its round. He sets and rises head first:

in his head are three stars; two in his neck; one in his breast; three between his shoulderblades; one half-way along his tail and another at its tuft; below his breast two; one bright star in his forward paw, another bright star in his belly, and a great one below it, too; one in his loins; one at his hindmost knee, and one, bright, in his hind paw: nineteen stars in all.



Leo

VIRGO, the Maiden, from her station below the feet of Boötes, touches the Aequinoctial Circle with her right hand, and the hindquarters of Leo with her head. She is seen stretching her lower body above the Crow and the tail of Hydra; and her head sets earlier

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in his head are three stars; two in his neck; one in his breast; three between his shoulderblades; one half-way along his tail and another at its tuft; below his breast two; one bright star in his forward paw, another bright star in his belly, and a great one below it, too; one in his loins; one at his hindmost knee, and one, bright, in his hind paw: nineteen stars in all.



Leo

VIRGO, the Maiden, from her station below the feet of Boötes, touches the Aequinoctial Circle with her right hand, and the hindquarters of Leo with her head. She is seen stretching her lower body above the Crow and the tail of Hydra; and her head sets earlier

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than her other limbs. In her head is one faint star,
and a single star at each shoulder; but two in either
wing, of which the one in the right wing, set just at
the shoulder, is called ΠΡΟΤΡΥΗΤΗΡ, 'She who goes
before the grape-gatherer.' She has beside a single
star in each hand; of which the one in her right hand
is both larger and brighter, and is thought to mark an
ear of grain. In her vestment, moreover, seven stars
are disposed here and there, so that in all her stars
number sixteen.

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SCORPIO'S foreparts are called the CLAWS, and
are so closely pressed by the Aequinoctial Circle that
they seem to support it. But Scorpio himself lies be-
low the feet of Ophiucus (whom we described ear-
lier), seeming to touch the Winter Tropic with the tip

of his tail; nor is he far from the constellation which Centaur appears to carry off as his victim. He sets with his body prone, but rises upright, his Claws first. In each of his Claws, so called, he has two stars, of which the forward ones are the brighter; and beside these three in his forehead, of which the middle is brightest; three between his shoulders; two in his belly; five in his tail; and in its barb, where we deem his sting to lie, two: so that in all his stars number nineteen.



The figure of SAGITTARIUS, the Archer, gazes upon the setting Centaur, even as he sets an arrow to his bowstring; from his hoofs as far as his shoulders he stands within the Winter Tropic, his head only appearing beyond its circle, as we have described it; while the milky band crosses midway through his bow. Before his hoofs lies that Crown made of stars, of which we spoke a little while ago. He sets head first, but rises upright. In his head he bears two stars; two in his bow, and one in the arrow; one each in his right elbow, his foreward hand, and his belly; two

betwixt his shoulders; and in his tail, his foreward knee, the hoof, the lower knee, and the hollow of the knee, each one: fifteen stars in all, but seven more in the Centaur's crown.

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Sagittarius

CAPRICORNUS, the Sea Goat, is enshapen wholly within the Zodiac Circle, facing the setting sun from below the left hand of Aquarius, with his tail and his body altogether parted in halves by the Winter Tropic. He too sets head first, but rises upright. Now then in his nose is one star; one below his mane; two in his breast; one in his foreward foot and another alongside it; seven along from his shoulders and seven down his belly; with two in his tail: twenty-two stars in all.



Capricornus

AQUARIUS, the Water Carrier, has his feet planted within the Winter Tropic, stretching out his left hand as far as Capricornus's back; while his right nearly rests on the mane of Pegasus as he looks upon the rising sun. Being so figured, he appears perforce all but prone bodily; and the water he pours forth spills toward the figure of the solitary fish, which we will soon describe. But Aquarius himself both sets and rises with his head before the rest of his limbs: in which are two faint stars, with single stars and great in either shoulder; one large star in his left elbow; one in his forward hand; single faint stars below his nipples; one each inside the loin, at both knees, and

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both feet, too: fourteen in all. Taken with the stream
 he pours, Aquarius's stars number thirty; but of all
 these latter the first and last show brightest.

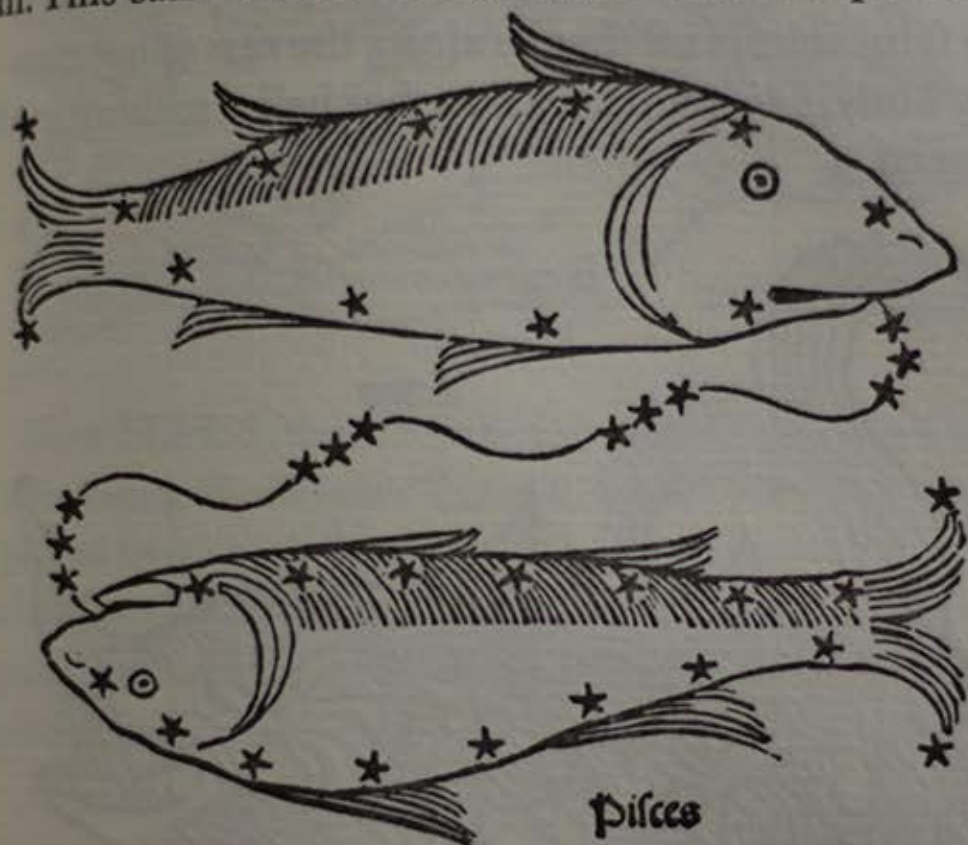
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Aquarius

Of PISCES, the Fishes, one is called after Notus and
 the other after Boreus: inasmuch as the one called
 Boreus, lying between the Aequinoctial and Summer
 Circles and beneath the arm of Andromeda, is posi-
 tioned facing the Arctic Pole; while the other looks
 toward the setting sun from his place at the Zodiac
 Circle's end, below the Horse's shoulders and not far
 from the Aequinoctial Circle. These Fishes are linked
 together from near the hoof of Aries, as if by a little

line of stars. We mark the lower of them setting and rising earlier, with seventeen stars in it; while Bo-reus's are twelve in all. Their tandem line strings three stars on the side leading toward the Eagle, and on the other side three; three more towards the rising ward, and at its joining three: amounting to twelve in all. This same tandem line, drawn from the point of



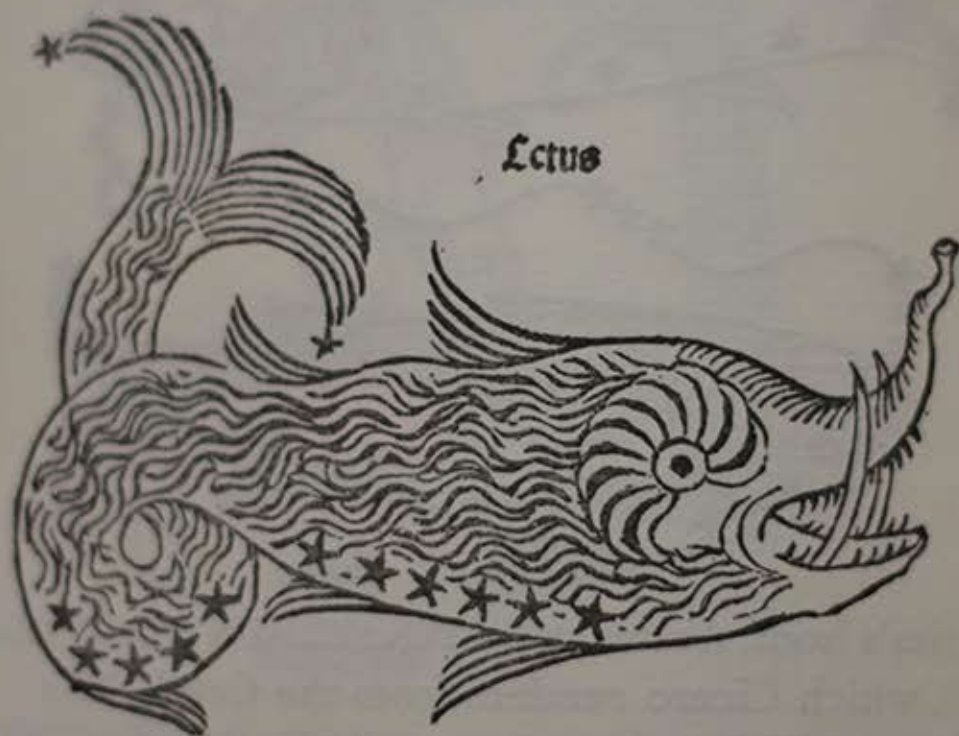
Pisces

Aries's hoof, Aratus calls ΣΤΗΝΔΕΣΜΟΝ ΤΗΟΤΡΑΝ-
 ION, which Cicero renders from the Greek, "the
 Heavenly Knot": meaning to signify thus that it ties
 together not merely the Fishes, but indeed all the
 heavenly sphere. For where it stands by the hoof of
 Aries, what we call the Midday Circle, because it
 marks high noon, touches and crosses over the Aequi-
 noctial Circle; and at that crossing of the Circles the
 knot of Pisces is tied: whence they have properly
 called it the knot not merely of Pisces but indeed of
 the heavens.

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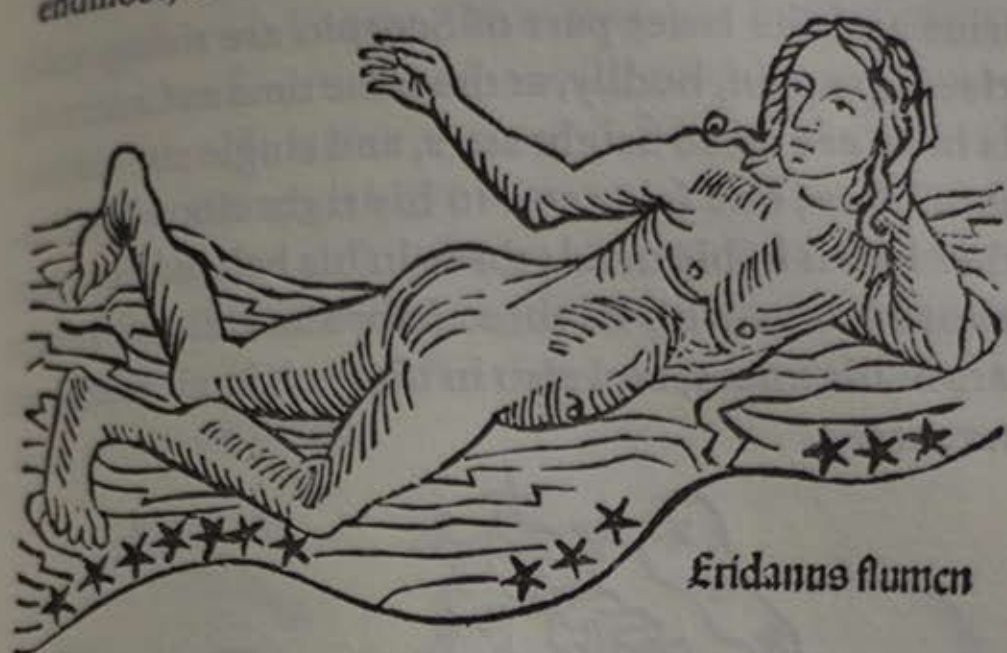
PISTRIX, the Whale, faces the rising sun and is parted midway from her tail forward by the Winter Tropic, with her snout almost joining the hind hoof of Aries. The starry river Eridanus seems to wash the forepart of her body, towards the sun's rising. She sets upon Cancer's and Leo's rising, and rises again with Taurus and Gemini. In the tips of her flukes are two faint stars, and thence along the rest of her curving body, five, with six along her belly: making in all thirteen.

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ERIDANUS flows from near the left foot of Orion, and runs as far as the Whale, coursing in several bends toward the feet of the Hare, and thence onward in the direction of the Antarctic Circle; the Winter Tropic divides its course at the point at which it nearly washes the Whale. We mark it setting once Scorpio and Sagittarius have risen; and with Gemini and Cancer it rises again. In its first bend are three stars, three in

the second, and likewise in the third, taken to the endmost, seven: in all its stars number thirteen.



Now LEPUS, the Hare, below the left foot of Orion, races along the Winter Tropic, his lower body in fact parted by it: with Sagittarius's rising he sets and rises with Leo. In either ear he has a single star, and disposed along his body two; with single stars in his forefeet: six, then, in all.



The Aequinoctial Circle parts the body of ORION at his belt, where he stands embroiled with Taurus,

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holding a cudgel in his right hand, and girded with a sword, facing the setting sun. He sets while Sagittarius and the latter part of Scorpio are rising, and rises up again, bodily, at the same time as Cancer. In his head are three bright stars, and single stars in his shoulders; one faint star in his right elbow, and another like it in his hand; three in his belt, whence his sword hangs with its three faint stars; single bright stars at his knees, and also in his feet; in all there are seventeen.



CANIS MAJOR, the Greater Dog, tracks the fleeing Hare, his forepaws cut off by the Winter Circle and his head, which faces the setting sun but stretches to-

ward the Aequinoctial Circle, all but joined to the right foot of Orion. Setting as Sagittarius rises, he rises again with Cancer. This Dog has in his tongue one star, and in his head another, which we have mentioned earlier, that some call Sirius, "the Scorch-er"; in his ears are single faint stars, and two stars in his breast; three in his forward paw, and three between his shoulderblades; one each in the left loin, the hindmost paw, and the right paw; and four in his tail: nineteen in all.



Canis maior

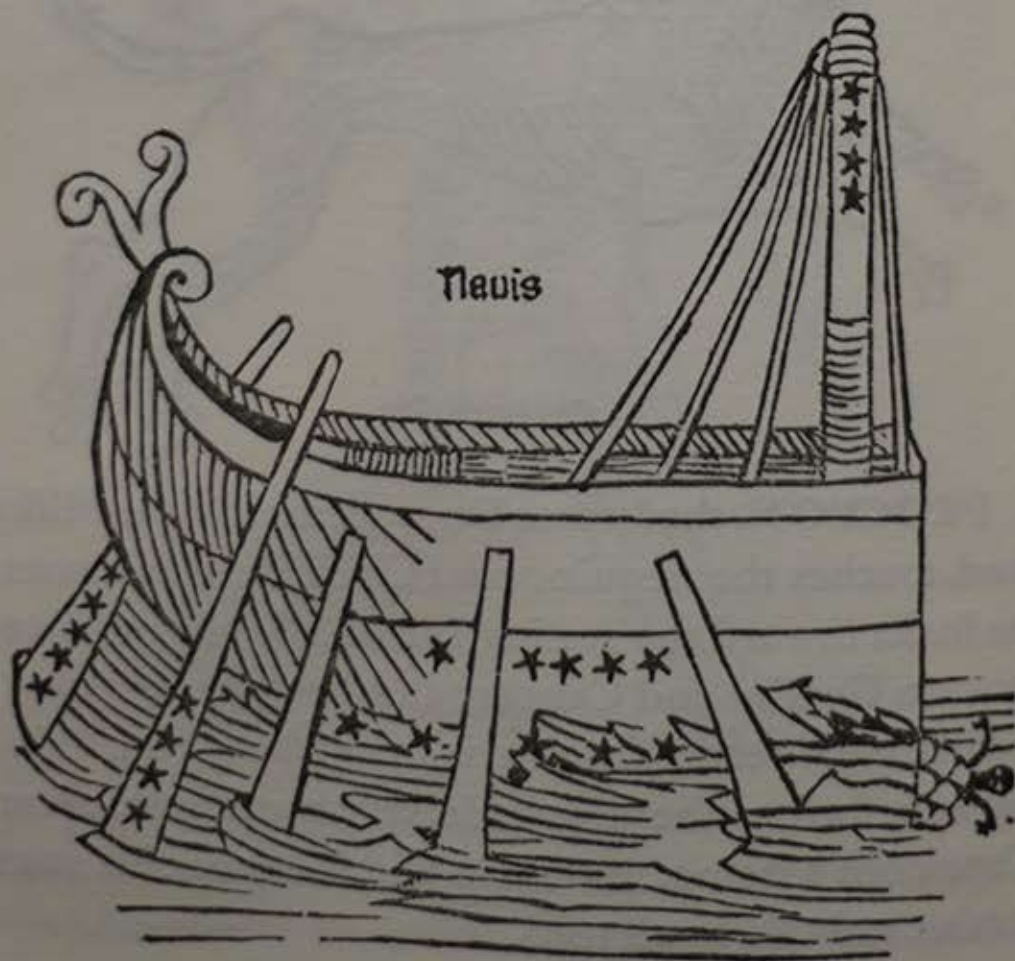
PROCYON, the Lesser Dog, set amidst the Milky band, touches the Aequinoctial Circle with his paws; he looks toward the setting sun as he runs in place between Gemini and Cancer; and because he rises before the Greater Dog he is called Procyon, "He that runs before the dog." He sets, moreover, upon Capricorn's rising, and rises with Leo: but his stars number only three all told.

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Canis minor

The ship ARGO touches upon the Winter Tropic and the tail of the Greater Dog by the underside of its stern, sinking into the Antarctic Circle as if it foundered at sea: setting when Sagittarius and Capricorn



Navis

have risen, and rising again with Virgo and the Claws of Scorpio. From its stern it trails five stars in the first rudder, and four in the other; along its keel five, and in the wash of its wake five; with four running up its mast: so that the sum of its stars is twenty-three. We have earlier explained why these stars are not all properly within the sphere.

CENTAUR's figure so appears that, with his feet braced on the Antarctic Circle, he bears the Winter Circle on his shoulders, his head all but touching Hydra's tail; in his right hand he holds his victim face-upward, touching the Winter Circle with its feet and the tip of its muzzle, betwixt that and the Antarctic Circle. What we call the milky band parts Centaur's



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Phyllirides

legs from the rest of his body: who, gazing toward the signs' rising, has set entirely when Aquarius and Pisces are risen, and rises again with Scorpio and Sagittarius. Three faint stars surmount his head, but a bright one shines singly at either shoulder; one each in his left elbow, his hand, and in the midst of his horse-breast; with single stars in both the hollows of his foreknees; four between his shoulders, two bright ones in his belly, three in his tail, one in the horse-loins, and single ones at his hind knees and in their hollows: twenty-four in all.

His victim, now, has two stars in its tail, one in the first of its hind feet, and one in each of its feet; one bright star seated at its shoulders, and one in the tip

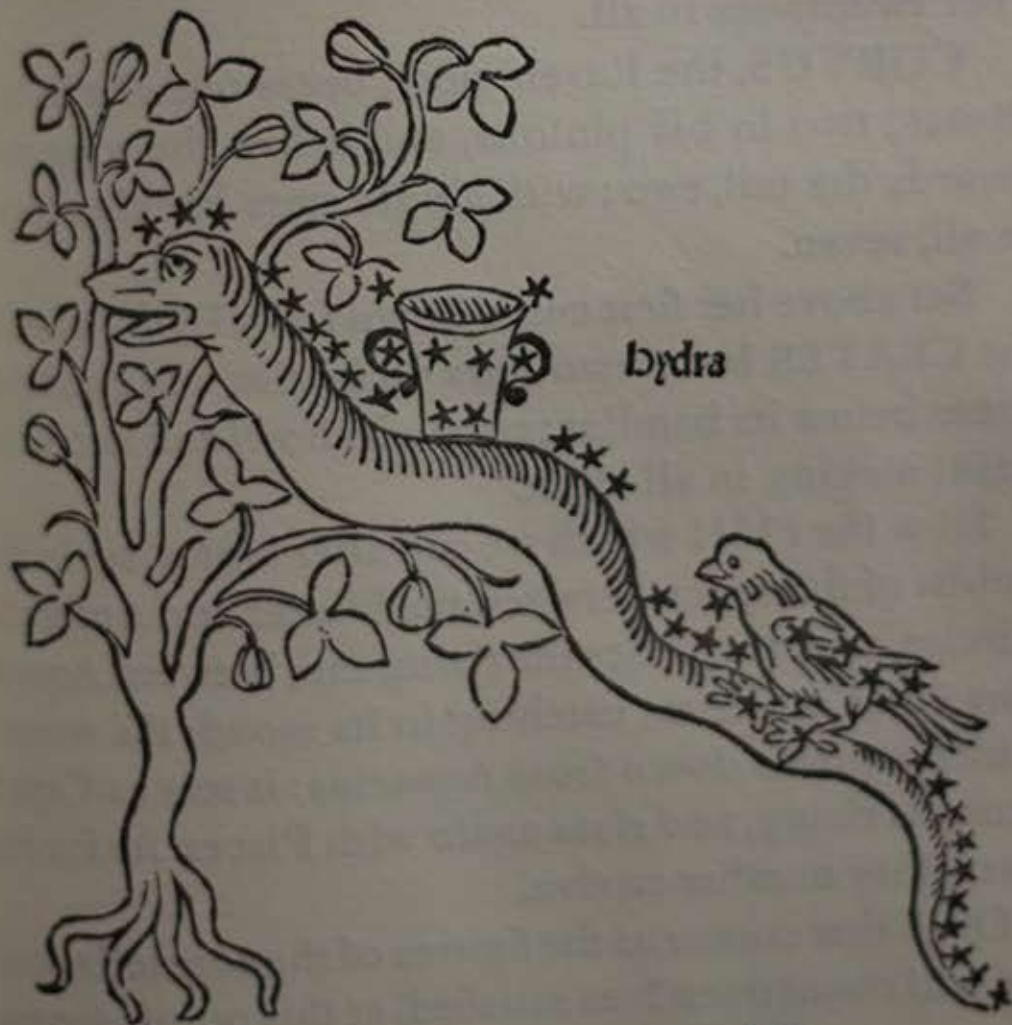


of its foot, with another below it; and three disposed in its head: in all ten.

ARA, the Altar, nearly touches upon the Antarctic Circle where it stands between the head of Centaur's victim and the tip of Scorpio's tail; setting when Aries has risen and rising with Capricorn. Upon its top, where it is formed by the Circle, are two stars; and in its base two others: these four, then, are all its stars.

(see ARA illustration on opposite page.)

HYDRA overspreads the length of three signs, Cancer, Leo, and Virgo, where she lies between the Aequinoctial and Winter Circles: but suchwise that, as her head strains toward the sign we call Procyon, a fourth part of her altogether dips between the Sum-



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mer and Aequinoctial Circles; the tip of her tail, moreover, nearly touches the Centaur's head, while on her back she bears the Raven, pecking at her coils with his beak; and with her whole length she stretches towards Crater, the Wine-Mixing Urn. It appears, standing off at a fairly wide reach, near between Leo and Virgo, though angled more towards Hydra's head. She sets when Aquarius and Pisces have risen, and rises again with the signs we have named here: in her head she bears three stars, and in the first curve down from her head six — but the last of these is the brightest; in the second curve, three; in the third, four; in the fourth, two; and in the fifth, through the length of her tail, eight, all of them faint: so they number twenty-six in all.

CORVUS, the Raven, now, bears one star in his throat; two in his pinions, and below the wing towards the tail, two; with single stars in either foot: in all, seven.

Set above her first curve down from Hydra's head, the CRATER bears two stars on its rim, and two faint ones below its handles; two in its bowl and two in its base; making in all eight.

Now the FISH which we call after Notus, set in the midst of the space between the Winter and Antarctic Circles, appears to face the rising sun, between Aquarius and Capricorn, catching in its mouth the water which streams down from Aquarius: it sets as Capricorn is rising, and rises again with Pisces. As for its stars, they number twelve.

Of all that concerns the figures of the constellations we will count ourselves satisfied, at this point; we go



on, now, to what remains of our account.

BOOK FOUR: Laying Out the Five Circles among
the Heavenly Bodies; and of the Planets.

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to begin with how the five circles were to be drawn in
the heavenly Sphere, but not, as we remarked,
properly in the body of the stars; and as the two end-
most (that is, the arctic and antarctic) circles have
little to do with the course of the sun, let us turn now
to the middle three. But since Aratus makes none of
them very clear, only asserting that the sphere itself is
of more concern than the four circles of his plan, let
us be plainer in setting out our own plan and, just as
we did at the outset, take up our discourse from the
pole Boreus.

We assert, then, that the Summer Tropic (by which
name we translate ΘΕΡΙΝΟΣ ΤΡΟΠΙΚΟΣ is one of
these four circles, namely that whence summer is or-
dained; if any still doubt but that both circles, that is
the Summer and Winter Tropics, should not go by
one and the same name, it must be because that which

we name for summer occasions winter for some, while the tropic which we say brings winter on, elsewhere produces summer. But if they shall wish to understand the truth of this with respect to our position in the World — we, that is, who dwell between the Summer Tropic and the Arctic Circle; and not for their part of the globe who dwell between the Winter Tropic and the Antarctic Circle: those parts we call the Antipodes — they shall readily enough come round to our persuasion. For anyone wishing to construct the sphere from the point of view of those Antipodean folk, who are settled as it were opposite our feet, will not without reason appoint our Winter Tropic to be their Summer Tropic; or if in speaking of the Antipodes a writer should wish to put the matter obliquely, he might say that for them the height of summer comes in Capricorn, the Sea Goat, and the depth of winter in Cancer, the Crab; and not without proof of the keenest reason would he seem so to say. Whatever indeed he should propose, contrary to what holds in our own band of the globe, he would be correct in doing. But that we may not prolong our discussion beyond what is seemly and proper, let us return to the subject in hand.

In the Summer Tropic, which we were first to appoint, these constellations, or some part of them, are visible: the heads of Gemini, the Twins; both knees of Auriga, the Charioteer, and the left leg and shoulder of Perseus; Andromeda, too, taken from her breast to her hand on the left, suchwise that her head, with her right hand and her breast altogether, appears to lie between the Summer and Aequinoctial Circles,

the rest of her body stretching out between the Summer and Arctic Circles. Next in this same band, the hoofs of the horse Pegasus appear planted; and the head of the Swan, apart from the rest of his body, and with no great part of his wing seen as leftward in flight. The Snake-handler Ophiucus seems to bear the circle on his shoulders on one side, while on the other side Hercules does the same. And Virgo, the Maiden, laying her head alongside, stretches hence toward the Aequinoctial Circle, as if to shed her brightness southward. Leo, the Lion, taken from his breast to his loins, appears, head and body from the legs upward; while below, he lies between the Summer and Aequinoctial Circles. And Cancer is likewise divided midway, so that the circle seems to pass between his eyes.

Now as the sun, borne along through these constellations, comes hither to this circle, as we earlier explained, it befalls in this reach of the globe that we enjoy five of eight parts daylight, and three parts night. Nor need we reckon this by the clock, for that matter, but from the proportions of the sphere itself: for when you have so set the sphere that the circle we have named Arctic lies always in view, while the Antarctic never even rises within sight, and so the sphere stands; then if you would divide the Summer Tropic into eight parts, you will find that five of these appear in the heavens above you, even as three, contrariwise, lie below the earth.

But some will say, why should we divide the heavenly circle in eight, rather than twelve parts, or in howsoever many you please? Such a one will hardly

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be found to have beguiled the heavens by his argument, but only himself. For if he make twelve parts of the Summer Tropic, he will observe seven and a half of them in the sky, leaving four and a half below the earth. For so it comes about that as a half part must now be added to the seven, so must a half part be joined to the four, making the seven and a half parts above the earth, and the rest (which are four and a half) below it. Thus it behooves us to understand—in order that there be no half parts or lesser, but rather all settled in firm numbers—that the numbering should fall out eightfold. Furthermore, since the sphere has been divided in thirty parts, such that eight parts must consequently lie from the Summer to the Winter Tropic, small wonder then that we should properly divide these circles too into eight parts.

Further still, because four of the sphere's thirty parts lie between the Summer and Aequinoctial Circles, and from that again to the Winter Tropic four of thirty again—and as the selfsame Aequinoctial band is of itself no less divisible in half, half of it resting above the earth, and half below (that is, four of eight parts; and just as many above)—the whole reckoning comes to eight parts: and there is no doubt that the correct division is eightfold.

Next, when we witness the sun, traversing these circles in its yearly course, to take its rising from among all the constellations, as out of the eighth part of them (as we shall go on to explain), and hence to pass on to another sign, having nothing further to do with any part of the first sign, the more rightly do we acknowledge the eightfold division of these same circles. And

further, when the seven stars revolve round the same station, as it pleases some to say, such that, as they presently stand, so they will again in that stage of the sun or moon; by the same token must this occur in the eighth year, so that truly must the sphere be parted in eighths. And accordingly we observe that the same hour of a star's first rising falls every eighth day, or in fine that for anything you care to name, whose rising occurs today, we will observe it to occur the same again on the eighth day hence; so we find it positively true that the very sphere of the World, whence we measure these hours, should be divided eightfold.

But lest, preoccupying ourselves with this question, we let others go unanswered, let us return to the subject in hand.

After the Summer comes the Aequinoctial Circle, in which these constellations or some part of them may be remarked: Aries, the Ram, in full, resting on all fours. Aratus, moreover, shows this to be the swiftest among all the constellations, exceeding even the Lesser Bear, which revolves in so brief a space. That he should so maintain we may most readily understand thus: for as the Aequinoctial Circle is the largest in all the sphere, and Aries appears affixed in it, and since in whatever array the figures of the heavenly signs be placed, the sphere itself must needs revolve once, in order that they come round to the same point in their circles, Aries thus, lying in the largest circle and returning to his place at the same time as the other constellations, must necessarily be admitted the swiftest of them.

But now let us come back to our description of the

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Aequinoctial Circle, and speak of the remaining constellations in it. Thereon we see the knees of Taurus the Bull pressing, albeit some have thought to shape him crouched upon one knee (his right) only, which his left hoof bends back to touch: we leave them in the midst of their argument. But hereby, too, we may deem the belt of Orion to be cinched round the circle itself; while Hydra, coiling back from the tip of her head, rears her neck so as to touch upon Cancer. And from Hydra's lower body the Wine-Mixing Urn, Crater, alongside Corvus, the Raven, catches our eye, as if strung upon the circle: a few stars also of Scorpio's Claws stand nearby. The knees of the Snake-handler Ophiucus are by this same circle divided from the rest of his body; and Aquila, the Eagle, is so shaped as to be barely linked with it by her left wing; and the head of Pegasus rests his neck upon it, too.

The Aequinoctial Circle is flanked by the bodies of these constellations, then: approaching which twice yearly, once when in Aries and again in the claws of Scorpio, the sun brings about the equinox. For this part of the sphere may be regarded as the birthplace of both spring and autumn, in that in Aries the spring commences; and autumn in the forepart of Scorpio, which some consider part of Libra, the Scales. Passing forward along the circle from Aries and Scorpio's Claws, the sun brings six months' daylight to those lands which lie with the orb of the Arctic; and as long a night to those lands ringed by the Antarctic Circle: whence all the more can none bear to abide in those regions. And, from the autumnal continuously to the spring equinox, that is, proceeding from the Claws

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as far as Aries, the sun wreaks perpetual day for six months, where before we beheld only night; but now, on the contrary, night roundabout the Boreal Pole.

But of this we have already spoken; nor should we wonder how it befalls so, given the plan of the sphere.

For being that this Boreal Pole stands overhead, and never sets, it follows that those bodies which lie nearest its circle appear long in setting, too. The truth of which may be gathered from this: since the globe is inhabited in those reaches from the Summer Tropic to the Arctic Circle — and from the Arctic Circle, that is, the two Bears and Draco, the Dragon, whose head seems to rest upon that circle, suchwise that he whom we call Engonasin, the Kneeler, lodged between the Summer and Arctic Circles, is thought to press upon the head of Draco; — whosoever (as we have said before) dwells below that same Draco's head must accustom himself to such long days that, indeed, there befalls him not the third part of an hour of night. And so Aratus says,

ΚΕΙΝΗ ΠΟΤ ΚΕΦΑΛΗ ΤΗ ΝΕΙΧΕΤΑΙ ΗΙΧΙ ΠΕΡ' ΑΚΡΑΙ
ΜΙΣΓΟΝΤΑΙ ΔΥΣΙΕΣ ΤΕ ΚΑΙ ΑΝΤΟΛΑΙ ΑΛΛΗΛΗΙΣΙ.

which Cicero renders:

here, then, the head hastily hides itself for a little, where rising and setting commingle in one measure. Homer, too, in his Odyssey, speaks thus of the night's briefness: that while some herdsmen are driving their beasts forth, others are bringing theirs in; so that each can hear the others' noise as one returns homeward with his herds against the night, while the other drives his forth at daybreak. But let us turn back to our subject.

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The third circle after summer's, we call the Winter Circle; it is bounded by these figures or parts of them: dividing Capricorn, the Sea-Goat, midway, and cutting off the feet of Aquarius, the Water-Carrier, we observe it to pierce the tail of the Whale. And now it parts from the fleeing Hare a part of his body, including his legs; as it does, too, the feet of the Dog who pursues him; and the stern of the Ship; and Centaur, again, neck from trunk. The very tip of Scorpio's tail, you may say his sting, arches back to this circle, and the Archer Sagittarius's bow is also drawn athwart it. Five of eight parts from this circle lie below the earth, and three above it; so that the day here must be shorter than the night, as we have explained.

Aratus lays out the fourth circle, which is the Zodiac's, not, like other astronomers, reckoning the twelve signs from Aries, and the onset of spring, but rather from Cancer, that is to say, from summertime proper. We, however, having begun with Aries, will continue thence. And so in this circle we figure forth the twelve signs. The three signs Aries, Taurus, and Gemini deal out springtime, with the spring equinox; the next three, Cancer, Leo, and Virgo, bring on the height of summer; but with Virgo, now, the sun begins to pass toward the autumnal equinox. So from the Claws of Scorpio, and in Scorpio himself, and Sagittarius — these three signs — comes autumn on, with its equinox. And in the last three signs, Capricorn, Aquarius, and Pisces, the sun completes the year's display with winter. Yet really there are not twelve, but eleven signs; inasmuch as Scorpio, by his great length, fills the space of two signs: his foreparts

being the Claws by name, but the rest Scorpio proper.

But since the earliest astronomers referred all things to a twelvefold measure — as with months, so with hours, and the breadth of the signs — so too they desired that these signs, which are the index of all else, should number twelve.

Forasmuch now as we proposed in preface seven circles, but have made mention of four only — and so that we may not seem to obscure matters by describing the seven out of order — then of the seven three circles remain to be treated of: the Arctic, the Antarctic, and that which we call Milky: and of these we now undertake to speak.

Now then the head of Draco, indeed the whole length of him, supports the Arctic Circle; and Cepheus, moreover, braces its round with his breast. The paws of the Great Bear also rest upon this orb; and next it Cassiopeia's throne, together with her feet, are likewise set; and by the right foot and knee, and the first toes of his foot, so, too, is he whom we call Engonasin, the Kneeler; also the right hand of Boötes the Oxherd reaches to touch the outer edge of the circle.

The tip of the ship Argo, and the hind hoofs of Centaur extend, on the other hand, to touch the Antarctic Circle, while his front hoofs barely alight upon it; the Altar is planted near him, and so are the furthest courses of the starry river Eridanus.

It remains for us to describe that milky orb we have earlier glimpsed: which cuts off the left wingtip of the Swan where it extends beyond the bounds of the Summer Tropic. And after this it passes through the right

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hand of Perseus, and from the left leg of the Charioteer Auriga runs in turn below his right hand, and so to the knees of Gemini, the Twins, and the feet of that constellation we call Procyon. Here, dividing the Aequinoctial and the Summer Circles, it touches the very top of the mast which juts from the ship Argo; whence it turns again in its course, parting the Centaur's body at his knees, marking the tip of Scorpio's tail, passing midway through the Archer's bow, and halving the Eagle, Aquila, too, betwixt her wings.

Now that we have duly expounded all these matters, let us go on to speak of the World's proportions, and the manner in which it moves; and also of what bodies they are which follow in the rising of the twelve signs, and of those which come to set with them. We are agreed, surely, that the World turns from the rising ward to the setting, because we observe the stars revolving from the sun's rising place to its setting. Thus indeed do we know in the first place what things rise and set. Now if any of us stand facing the rising ward, the Bear will necessarily be to our left; and, this being the case, it must follow that all bodies rising on our right side appear to set leftward of us, as we have earlier said. As, therefore, we observe the stars rising and setting, so we must deem the World wheels round with them. But some say, notwithstanding this, that it is possible for the World to stand still even as the stars rise and set: which cannot possibly be the case. For if the stars are borne errantly along without the World itself revolving, those figures shaped by them in it cannot possibly remain intact and steadfast. Indeed we see as much, in

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that there are five stars in all the World which do wander, whose courses none can ascertain. Even Aratus admits himself unable to make sense of their difficult orbits; how then, when no one can properly observe these five stars, can any claim to trace so many thousands? — unless, of course, he allow that, the stars following their courses withal, can hold fast their shapes. Disallowing which, however, the whole of the sphere is called down to confusion.

Whoever then will lay out the sphere can nowise order it such that, while the World stands fixed, the stars nonetheless revolve. For example, we observe a certain star in the very tip of Draco's tail, which revolves in its own course yet remains in that same position: but if all the stars wander in their way, so must this, too, leave its place: yet this does not happen.

Therefore it must be that the whole World, and not just the stars, revolves.

Of Day and Night. Since we are satisfied that the World revolves with the stars, rather than the stars of themselves, let us take up the rest of our discourse. For as the account has come down to us, that night was created before day, we say that night is the earth's shadow, blocking the sun's light. Albeit some have said it comes about that when the sun in its course arrives there where we observe its setting, the mountains thereabout, by their height, turn the sun's light aside from us, and thus we have night: which if it were true, undoubtedly we should more properly speak of the sun's eclipse than of nightfall. But we shall presently understand by the sphere itself that things stand otherwise.

The Horizon, now, divides those things which are visible from those we cannot see, and so apportions the Sphere that six of the twelve signs are ever in view in the hemisphere above the earth, while six signs lie below it. When therefore the sun, borne along in the midst of one of the signs, is seen to rise from this Horizon circle, thereupon it first shines forth, revolving no less than as the World does, along with the other signs. But that this may be more readily understood, let us assume the sun to be in Aries, whence we established the numbering of the twelve signs: then whenever the sun rises along with Aries it is day—the sun meting out half the daylength when (the World making its own revolution all the while) it arrives at what is called the Midday Circle. But we may still more readily understand it thus, taking up our account again in Aries: when Aries has risen, he finds before him in the upper hemisphere the signs Pisces, Aquarius, Capricorn, Sagittarius, and Scorpio; three of which having set—that is, Scorpio, Sagittarius, and Capricorn—three also will have risen following Aries—namely, Taurus, Gemini, and Cancer. With that must half the day be done, and Aries come to the Midday Circle we just now mentioned. And, further, when with the other signs Aries itself sets, then will Leo and Virgo, with the other signs, have risen; next the Claws of Scorpio rise and are borne up into the hemisphere overhead: and these having set, then Aries, newly risen again, brings on the daylight.

But that we may arouse no doubts, when we say that with Aries's setting the Claws of Scorpio rise, thus will we contrive to understand how things stand

with the rest of the constellations of the sphere:

Whatever sign the sun may be in when it rises, that sign which stands seventh after it will be the first to rise with nightfall, completing the day's course. For the World itself revolves once every day and night; and so it happens that these same twelve signs are to be seen once in every day and night. But lest we should measure out the sun's course—of which we shall have more to say later—more finely than the subject which we first undertook, let us return to that.

We said, now, that night was the first state of the World, and that day followed from it; yet we deem nothing to set night apart from day, beyond the earth's shadow. But since we have already established the rising of the constellations and the heavenly bodies, we shall pass on to that.

While then the World revolves round its axis and both its poles (that which we earlier called the sphere's Diameter), the heavenly sphere, too, is so positioned that one of its poles looms ever over us on earth, while the other never rises. Neither then must the Bears or those other figures which lie within the Arctic Circle ever set; whereas all the rest, lying below what we may call the circle of never setting, have their proper risings and settings. Now how this can so be-tide, we are thus instructed: we observe the tip of Draco's head, which juts beyond the Arctic Circle, to set just in time that its rising is all but confounded with its setting, as we earlier remarked. Now if any part of the uppermost circle be found to set, surely all those below it must rise and set; thus it behooves us to think the stars set and rise while the World revolves.

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In this arc of the heavens, now, wherein one circle keeps thus aloft without ever setting, and the other lies always below the earth and never rises, there is no circle whatever in the sphere, from the Aequinoctial Circle to the Boreal Pole, so called, the larger part of whose circumference does not arch above the earth. Whereas every circle from the Aequinoctial Circle to the pole we call Notus sweeps its larger arc below, rather than above, the earth. And the closer one approaches to the pole Notus, the longer does that arc stretch below the earth; while the closer one approaches to the bounds of Boreus, the further do the circles appear to extend above the earth. For the more directly the Pole itself may stand overhead, the higher, too, will the circles appear to reach. Which being so, if two stars take their rising together, one from the Arctic and the other from the Antarctic Circle, the one which rose from the Arctic will set later, by reason of the longer circumference it takes in the sphere than that which rose from the pole Notus. If, however, they set together, that constellation which has risen from the Antarctic will be later to rise, for the reason that all the signs appointed in that part of the World follow greater arcs below the earth, than do those in the region surrounding the Boreal Pole. And not only do those constellations which surround and border the Arctic stand out among the heavenly bodies, in setting after and rising before those we have arrayed round the pole Notus; those bodies are even ill agreed among themselves, so that though a constellation be lower in the sky, yet if it rise as if it were in the upper heavens, so too will it set later.

Likewise, on the contrary, if of those constellations which we have traced from the Aequinoctial Circle to the pole Notus, a part shall have risen at the same time, so shall they come to set more swiftly than those which approach nearest the pole. For as it happens, not only do a part of those stars rise together which lie nearer about the Arctic Circle than those which set later, but also those neighboring the pole Notus, which have risen earlier, will by the same token set earlier than those which we have shown above to figure round the Boreal pole: inasmuch as they follow a greater circumference of the sphere than those which are arrayed between the Aequinoctial Circle and the bounds of the Arctic.

Now, then, having shown in what regard the motions of the sphere stand to the World, let us return to the twelve signs; and of those which are risen, let us bear in mind which rise or set from amongst what other heavenly bodies, taking Aries as our point of reference.

Aries takes its rising in the right side of Andromeda, as the Altar is seen to set. Among these same stars Perseus, too, from his head as far as his navel, rises, so that it appears uncertain whether his belt, in first rising, advances to shine from the tip of Aries or from Taurus. Taurus having risen, however, all that seemed doubtful at first is now manifest: for now the Altar (which we recollected above) sets altogether, and Perseus rises in his entirety. Auriga, too, appears now, from his head down through the length of his body, as far as his right foot, and we discern the whale rising from her tail up. With this constellation the

Oxherd, Boötes, first appears to set, although he does not set quite till the four constellations do. Nor does he, for all that, entirely sink to earth; for his right hand, caught up in the Arctic Circle, neither rises nor sets. As the Twins rise, all of the Whale now, and the first stretch of the river Eridanus, and Orion, too, first appear; while the Snakehandler Ophiucus, from the line of his knees, sets. Cancer in rising obscures the half part of the Crown, the tail of the Whale, and the more southerly Fish, as well as the head of him we call the Kneeler, and indeed the rest of him down to the navel: also Ophiucus from his knees to his shoulders, and all of the Serpent from the head and throat down, as he stretches from the Summer Tropic toward the Crown. Now the earth holds nearly all of the Oxherd hidden, but the body of Orion, down to his belt, and all of Eridanus, now appear. With Leo's rising the rest of the Crown sets, along with the head and throat of the Serpent, and Ophiucus; while nothing more than the right knee and foot of him we call the Kneeler is left in view, and the Oxherd is altogether hidden.

The head of Hydra, however, with all of Leo, now rises, and Procyon, along with the forepaws of the Greater Dog, and the Eagle in full. But no few stars are they that veil the Maiden's rising: for all at once do the Lyre, the Arrow, and the Dolphin throng to their setting, and the Swan too, all but bodily, from head to tail; also the forecourses of the starry river and the Horse's head and mane.

But at the same time Hydra rises, next the rim of the Mixing-Urn, and all of the Dog, and the ship Argo,

too, fully from the hem of its sail. And now, with the Claws' rising we see the Oxherd risen in full, and Hydra, too, who lay below the earth, to the furthest tip of her tail. And from his knee and his right calf also the Kneeler, as we call him, is risen: whom we may see set and rise again in the course of one night; the rest of his body, however, comes up with part of Scorpio and of Sagittarius. Then the tail of Centaur rises, along with the Claws, while the rest of Pegasus's body sets, and all of the Whale to his neck, so that only his head remains in view. And the head of Cepheus, bending toward the setting Whale, with hands and shoulders both reaches earthward. With Scorpio's rising both courses of Eridanus also set, along with the rest of Andromeda's body, and the head of the Whale. Cepheus, too, now sets, at least his head and shoulders, which stretch beyond the Arctic Circle; and Cassiopeia, cast on her back, also sinks into shadow. Yet even now the Crown rises, which we may imagine cast before the Centaur's hoofs, along with the rest of Hydra's length, which we have described as her tail. And the Centaur mounts up bodily, whom we imagine shaped like a horse, with a man's head; and his quarry, too, whom we spoke of his catching before; and at length its body, next which his forefeet are planted. Ophiucus, moreover, rises up as far as his head, and the head of his Snake, which faces the Crown: his rising in full follows upon the rising of Sagittarius and of the Snake that he grasps. The head of him we call the Kneeler, together with his right hand, and thereupon the Lyre entirely, with Cepheus's head and shoulders come forth and shine.

And now the Greater Dog sets, with Orion fully, and the Hare, and the upper body of Auriga, followed by his legs and feet: and with them sets Pegasus, all of him save his right leg and foot. And of Argo only the stern remains, the rest sinking earthward.

As Capricorn rises, these stars appear to press towards earth: the rest of the figure of the Ship, and the sign we call Procyon; and at the same time the rest of Perseus's body; even as the Swan, with the Eagle, Arrow, and Altar, rise — which we have observed to lie nearest the pole Notus. Aquarius, the Water Carrier, raising his body up midway, draws the hoofs of the Horse on with him, and the head and mane of Pegasus also. But opposite them Centaur, from his tail to the shoulders of his manlike body, sets, and with him Hydra's head and throat. And as Pisces, the Fishes, rise, so set the rest of Hydra's body, and of Centaur's: but Pisces, which we assigned to Notus, along with the righthand side of Andromeda's body, rise.

Thus, then, against the rising of the twelve signs, do we observe the other heavenly bodies setting and rising. And as we promised, we now will speak further of the sun's course.

Now it must either be that the sun move of itself, or hold to one place while the World revolves: which if it hold still, it would needs set and rise again in the same place it rose the day before, just as the constellations rise and set in the same place ever. Furthermore, were this the case, then would our days and nights all need be of equal measure, such that as long as this day should prove to be, just so long will the

day always be. And the night likewise, for like reason, should remain the same. But since that is not the case, then it must surely be otherwise, as we witness the days to be unequal, and the sun to rise in one place today, which yesterday set in another. But if it sets and rises in different places, then it must needs move, and not stand.

That the sun's course, moreover, runs contrary to the motion of the World, we may understand thus: it so befalls that there are two causes for which we cannot see certain stars. The first is that once they have retired below the earth, they are escaped from our sight, too, and instead are displayed in the lower hemisphere. The other cause, then, is that any constellations near the sun's blaze are by the main strength of that light overwhelmed: either it blocks the stars, so that none of their lustre reaches our sight, or by the intensity of its light so dazzles our eyes that we can discern nothing whatever beyond its own fire: which would seem the more probable case. For we do not see the sun's fire to be such as we know other fires to be: rather its light drives back our own, while itself, truly, seems to us to glow, not like fire, but pure white.

So it happens that in any one night eleven signs must appear, being that the sun, resting within one sign as it takes its way, by its own light veils the bodily shape of the sign; and so it appears to set and rise with that sign. Some say that on this plan our observation should extend fully to twelve signs, if the sun stand fast from the outset in the lattermost part of the sign: for the twelve signs by this reckoning should

be so partitioned that each of them measures thirty parts in height and in breadth twelve parts. And so it happens that the year is told in the height of the signs, and the day in their breadth. But some say, too, that as in the first part of a sign we are no less able to make out the rest of its figure as well, so likewise should we do though the sun stood in the latter part of the sign; but this cannot happen so. For when the sun rises in whatever part of the sign you please, it shines with a brightness that veils all the stars. It can happen, for all that, that when the sun sets in the foremost part of a sign, the rest of its body may appear: but it is more surely and truly probable that eleven, rather than twelve, signs can be observed.

Next it is asked how it is that the sun, running a contrary course to that set by the World, appears withal to set and come round again with the World's own sphere. For were the sun not to take its course counter to the stars' setting, then it would pass from Aries to Pisces, not to Taurus: since we observe Pisces to rise and set earlier than Aries; and the World to revolve so that it does so. Thus the sun takes its course through Aries in thirty days, veiling the Ram's shape meanwhile: during which time it appears to rise from that place whence Aries rose before it. But after thirty days we see it emerge from the same place whence we saw Taurus rise beforehand, and thus we mark the sun's passage from Aries to Taurus. Which if it move so, then it must needs run counter to the direction of the World.

How then does it happen (as we have remarked it does) that the sun appears to revolve with the World?

The reason is similar. It is as if, seated in the prow of a little boat, one wished to make one's way to the stern; all the while the boat would pursue its way, and one would seem to go against its course, yet arrive still at the same place with it. This is more readily understood if you will divide the boat into 360 parts, exactly as the sun passes across the World in 360 days. The boat being divided as we have described, one may, within any one part of those 360, go against its course, daylong as the boat sails; yet we acknowledge that one will arrive in the end at the same place. For he is not outside the boat who thus passes from stem to stern of it, but is contained by it still. Likewise the sun, as it makes its way through the World at large,



being all the while contained within it, seems to go counter to the World yet comes with it to its setting. And when the World has revolved 360 times, the sun has then completed its yearly course.

We have now committed to words all that concerns us regarding the sun; let us then turn to the moon.

(Albeit we have undertaken to make a full account of other matters, we come to this subject by the nature of our book.) Let none think that we abandon our purpose untried, or lose heart in it because of the great effort it requires, or yet, overcome by our inexperience, prove unworthy to follow it through. Rather do we persevere as we began, explaining our reasons for setting things out as we think best, not out of fear of men's bad opinion, but because we have wished that they might seek out no other book, having read through our own: for we did not mean to

Luna



whet their desire for other accounts of things that we ourselves have so long meditated. Having at any rate pursued all our other subjects so diligently, surely it would seem strange were we not to seek out the causes of things here, as well.

For which reason, just as we promised to do, let us return to our subject, and devote as many words to the moon and the sun as seems proper, making our account thus:

The moon must needs pass through various risings and settings, and not stand still: which one may more readily understand of it than of the sun. For neither is her shining so ardent that it troubles our eyes, nor like the sun is she borne for thirty days in one sign, making it difficult to gather what portion of her light, or that of the sign itself, appears to be left, when she passes into another sign. For since the moon travels through twelve signs in thirty days, we may conclude that she is two days and six hours in each. And since she receives that light from the sun by which we behold her to shine, it is most unlikely for many reasons that she should stand still rather than move.

Now if she shone with her own light, then it would follow that she ought always to shine evenly; not on the thirteenth day, when she has run its full course, to appear so very thin, or indeed not to be visible at all; by which we may only suppose she has passed on to another sign. By the same token, if she shone with her own light, she ought never to pass into eclipse: but let there be no doubt, that since eclipses of the sun can occur, which we have earlier declared to give light from either side, the moon cannot still more

readily be eclipsed, shining as she does by another light than her own. This we adjudge the most credible explanation. For when most of all the stars and in all the World we observe the moon near to earth, advancing most clearly in view; and at that season she comes all at once to the same part of the sign in which the sun is borne, there does she veil the sun's light from our eyes. And this befalls mostly in the lattermost days of the moon's passage through the twelve signs, when the sun appears to pass into another sign and the moon passes nearest it. Which we may understand to come about thus: it is as if someone were to raise his hand flat up against his eyes; the closer he does so, the less will he be able to see; and the further back he withdraws his hand, so much more will all before him be visible. For the same reason the moon, when she approaches the sun's position, appears then so near before it as to stop up its beams, so that it can cast no light. But when the moon has withdrawn from that position, then does the sun pour his light forth, and directs it hither.

The lunar eclipse, on the other hand, comes about in this wise: when the moon stands nearly on the Axis of the sphere, while the sun withdraws below the earth just so far that were one to trace a line straight through the midst of the earth, one would strike the sun there beneath (the moon, meanwhile, standing overhead): things being so brought to pass, it must needs be that the sun's rays be turned asunder by the bulk of the earth, so that the light by which the moon shines cannot possibly reach her: thus we deem the lunar eclipse is wrought. But now, if the moon shone

by her own light, how could the sun ever show its effect?—despite all, the moon would shine. But rather she receives her light and shines when the sun comes up over the earth—not so as to fill any tract of the sky, much less all of space, with her light. Were any of us to stand where the sun shines brightest, some part of the light he received would he send forth again. And thus we find of the moon; she shimmers with the very light by which the sun lights her.

Some suppose, when, as we say, the sun is in Aries, or whatever sign you please, that it makes its way quite above those stars which make up Aries. But they who reason thus wander far from reason itself. Now it is true that neither the sun nor the moon would seem to neighbor the stars; and because of this some have fixed the number of wandering stars at seven, counting the sun and moon among them because they are borne along with the five stars. Now the moon lies next the earth, whence she is observed to pass across the whole World in thirty days; and this comes about in this manner: if one were to fix circles with the circle of the zodiac, having the earth always as centerpoint, and making the measure of their intervals the distance between the earth and the moon—which the Greeks called TONON, 'a length,' (so they called it because they could not say for a certainty what its measure is)—so that, thus, the moon stands off from earth one tonum: in that relation, then, the moon, borne round in the shortest of the circles, in thirty days should return to her beginning sign. From her circle, now, another circle lies one-half-tonum off, in which the star of Mercury travels; and so it

passes later than in thirty days to the succeeding sign; and from that circle lies another at a half-tonum's distance, in which the star of Venus takes its way, and completes its course still later than the star of Mercury (for it passes to another sign in thirty days). Above this star runs the course of the sun, lying one-half-tonum beyond the evening star, Hesperus — which is Venus; and it, too, hastens along like those stars below it, and courses through the twelve signs in one year, passing to a new sign every thirty days.

Above the sun and its circle, to continue, is the star of Mars, one-half-tonum beyond the sun; and it is remarked to pass in sixty days to another sign. Above Mars's circle one-half-tonum is the star of Jove. It, in turn, takes one year in passing onto another sign. The outermost star is Saturn's, which travels the greatest circle, lying a full tonum beyond Jove's; consequently it runs the course of the twelve signs, from whose figures it lies one and a half-tonum distant, in thirty years.

By this reckoning, then, you may conclude that neither sun nor moon adjoins the stars, albeit they circle through the Zodiac; and hence we may understand that the moon is smaller than the sun. For all things that lie nearest us must needs seem larger than those which we see across a wide interval. The moon, therefore, we behold nearest us, yet it looms no larger in view than the sun; which can only mean that as the sun lies at some distance beyond the moon and seems larger to us withal, then were it to approach near us it would seem much larger still.

Further, it must needs be, as we earlier proposed,

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either that none of the stars wanders, or that both sun and moon wander equally with the other stars. For if anyone can set me forth the courses of the five stars, and assert as much as that each of them passes into a new sign today — just as we witness the sun and moon to do — and no less than they do, follows its course round, then indeed it does not wander. If however it be doubtful whether today it pass to another sign and be borne forward in the same manner as the moon, from sign to sign, or rather take its course after the manner of stars which are uncertain, then surely it wanders. But really they do not wander, especially since in their proper season they return along their courses. It follows indeed that no star can be said to wander which returns to its proper sign at a certain season; unless perchance we would accept in excusal that there are two great heavenly bodies more easily



observed than individual stars, which on observation appear to follow no certain course.

Some now have said these five stars are those of Venus, Mercury, Jove, the Sun, and Mars; of which Venus, being the most lustrous white in color, is given the name Hesperus, the evening star. Her star lies no further from the sun than two signs, and, as we have earlier said, is fixed below its circle. It shows most prominently by night, but in a whole month cannot be seen more than nineteen times. Following a course on the whole uncertain, Hesperus does not pass back to any sign in its path at a regular interval.

The second star is Mercury's, also named Stilbon, the Glistener: its light being always piercing, though itself not great in aspect. But it lies no further than one sign from the sun, and follows ever the same



course: now making its first appearance in the night, and now again starting forth long about sunrise; and sometimes it keeps with the sun for four signs continuously; and when it goes down with the sun, the space between them is no more than the third part of a sign.

The star of Jove, whose name is Phaenon, the Shining One, bulks large in body, rather like that of a lyre.

Him we deem to traverse the twelve signs in as many years. And in each year he is thought to be visible nowhere at all, never for less than thirty days, nor more than forty. But it is when he sets with the Sun that he is longest hidden; whereas in rising he appears before the sun.

Juppiter



The star of the sun, whose name is Phaethon, the Radiant One, is also great in girth, and withal the color of fire, like that star we see in the right shoulder

of Orion. We see his star borne through the twelve signs continuously in its track; sometimes it appears with stars of its own circle, and again with others in neighboring parts of another circle. Some have called this same star Saturn's, and have said that it returns to the same sign every thirty years, and every year is nowhere to be seen no less than thirty days, nor more than forty.



There is left us only to speak of the star of Mars, which is called by the name Pyrois, the Fiery One: for though it is of no great size, it bears the look of a flame. Sometimes it courses among the stars surrounding the sun itself, in its flight through all the signs, leaving behind its starting sign no longer than two years.

Of what touches the five stars, we judge with this to



have said enough; now then let us show for what reasons the months are intercalated, all our time being meted out by day and night, month and year. And among them have they defined the day for us to last as long as the sun's passage from rising to setting; while to night they have appointed the space during which the sun, from its setting, circles back afresh to its rising; and to a month as long as the moon takes in traversing the Zodiac circle; while they allow a year to have passed when the sun retreats again from the Summer Tropic.